

CROSSTALK® Communicator

TELECOMMUNICATIONS SOFTWARE
FOR MS-DOS®
OPERATING SYSTEMS

USER'S GUIDE

CROSSTALK[®] Communicator User's Guide

CROSSTALK® Communicator

User's Guide

Revision 09-90

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First Edition Printed 1990. Printed in the United States of America

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1 Introduction

CROSSTALK[®] Communicator, when used with your PC and a modem or direct-connection, enables communication with other PC systems, mini, and mainframe computers. The wide variety of terminal emulations and file transfer protocols supported ensure connectivity with almost any host.

CROSSTALK Communicator can automate connection processes with the use of CASL[™] scripts. Included scripts provide auto-login to major online services such as CompuServe and MCI Mail.

A Dialing Directory holds an entry for each host you connect to. Each entry contains information specific to the host for which it is configured. A special utility named EASYCALL assists you in creating Dialing Directory entries for major online services as well as custom setups for systems which do not appear on its list.

The CROSSTALK Communicator help system is always available when you need it. Help information is cross-referenced so that you can choose to read about related topics when appropriate.

This User's Guide covers all aspects of program use, and therefore contains a good deal of information. However, learning to use the program actually involves very little reading. By following the instructions in the first few chapters, even new users can begin communicating within minutes of installation.

1.1 Learning to Use CROSSTALK Communicator

After reading this introduction, turn to Chapter 2, which guides you through installation. If you are experienced with *any* communications software, continue with Chapter 3's "Quick Start" for orientation to the mechanisms for getting connected and performing basic on-line operations. (Less experienced users may want to bypass Chapter 3 and begin learning program use with Chapter 4.)

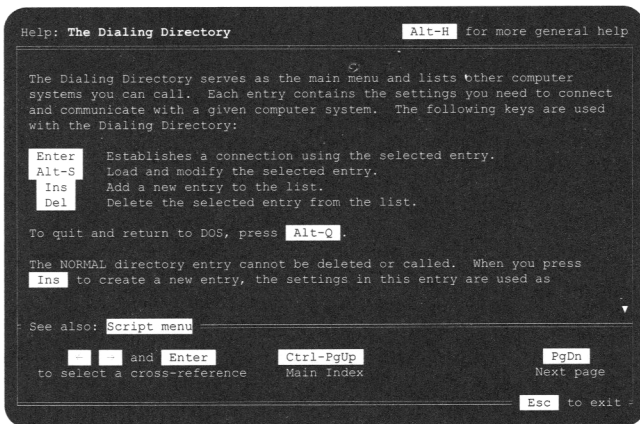
Chapters 4 and 5 provide basic information you'll find helpful when interacting with any host system. As you continue to use the program, refer to Chapters 6 and 7 for details on time-saving functions and other conveniences that help you take full advantage of its capabilities.

NOTE: You're often instructed in this *User's Guide* to press "Alt" or "Ctrl" key combinations (such as **Alt-S** or **Ctrl-PgDn**). This means you hold down the first key while pressing the second key. For example, to use **Alt-H** for Help, you press the **Alt** key and keep it pressed while typing **H**.

The Help System **Alt-H**

In addition to using this manual, you should take advantage of the Help system built into the program. The Help system provides instant on-screen assistance for any operation and is accessible from any point in the program.

Whenever you're unsure of what to do next, press **Alt-H** to display a window of Help for the current operation.



When you're finished viewing Help text, press **Esc** to remove the Help window and continue with what you were doing.

READ.ME Supplemental Information File

As a final bit of information important to program use, you should check your CROSSTALK Communicator directory (or disk, if you install to a floppy) for a file named READ.ME. If this file exists, it will contain information concerning your version of the program that is not covered in this manual. READ.ME is a text file that can be printed with the DOS PRINT command or viewed with the built-in Editor (which is described in Chapter 7).

2 Installing and Starting CROSSTALK Communicator

To install CROSSTALK Communicator, you must run the INSTALL utility as described below. You cannot successfully install the program by simply copying files from the master disk to your hard disk.

After showing you how to use INSTALL, this chapter provides information on configuring the program for your PC system. After taking a few minutes to follow these instructions, you'll be ready to begin communications.

2.1 Running the INSTALL Program

To install CROSSTALK Communicator, run the INSTALL program as instructed below. INSTALL guides you through the installation process with on-screen prompts.

NOTE: If you don't have a hard disk, or do not wish to install CROSSTALK Communicator to a hard disk, you can install to 720K or larger floppy diskettes. If you use 720K diskettes, you will need two diskettes to install CROSSTALK Communicator. If you use higher capacity (greater than 720K) diskettes you only need one diskette.

The diskette(s) onto which you install CROSSTALK Communicator must be formatted with DOS's FORMAT program before you run INSTALL. Do not use FORMAT's /S option when formatting.

To run INSTALL, insert CROSSTALK Communicator program disk in your drive A. At the A: prompt, enter the following command:

INSTALL 

Installation proceeds under control of the INSTALL program; respond to all prompts, and follow all on-screen instructions. (If you decide during this process that you need to exit INSTALL, press , and restart INSTALL when you're ready.)

When INSTALL is finished, you are returned to the DOS prompt. Store the original disks in a safe place in case you need them for reinstallation.

2.2 Starting CROSSTALK Communicator

To start the program, use the appropriate DOS commands to access the disk drive and directory where you installed CROSSTALK Communicator:

```
C:  ↵
```

```
CD  \CCM ↵
```

If you installed in a different drive or directory, substitute the correct drive or directory name in the above commands.

Then, enter the following command to start the program:

```
CCM ↵
```

Normally, the first thing you see after starting CROSSTALK Communicator is the dialing directory, which is the starting point for establishing connections. The first time you start CROSSTALK Communicator, you must configure it as described in the following section.

Configuring the Program for Your PC System

When you start up CROSSTALK Communicator for the first time, a special configuration utility automatically begins running. This utility, called CONFIG, prompts you for information about your computer system and the manner in which it is connected, and sets up the program according to your responses. CONFIG continues to run until you finish configuration; if you need to stop CONFIG, press **Esc** and return to it later (see the note below).

When configuration is finished, you remain in CROSSTALK Communicator. After reading the remainder of this chapter, proceed to Chapter 3 (for users with experience in PC communications) or Chapter 4 (for inexperienced users).

If you are finished for now and want to quit the program, press **Alt-Q**.

NOTE: If you ever need to reconfigure, as when you make a change to your PC system equipment, press **Alt-M** from the Dialing Directory to display a list of Utility scripts. Use the cursor keys to highlight CONFIG and press **Enter**.

2.3 Quitting the Program

To quit the program at any point in operations, press **Alt-Q**, and select Yes when asked if you want to quit. This exits the program and returns you to DOS.

3 Quick Start for Experienced Users

This chapter is provided for users who already have experience with communications software. If you've used *any* program for modem communications, this chapter helps you match your experience with the mechanisms that support routine communications tasks.

In the following pages, you're shown how to place a call to the Crosstalk Bulletin Board System (BBS) in our Atlanta office. This process is the same one you'll use to begin communications with other host systems.

In addition to showing you the basics of getting on line with a host system, this chapter introduces you to the functions that capture information to disk and allow you to review the information you receive during any communications session.

3.1 The Help System

No matter what your level of previous experience, the learning process in mastering any new software package involves encounters with unfamiliar functions. Whenever you're unsure of what to do next, the Help system (accessed by pressing **Alt-H**) can provide an instant, on-screen explanation.

You should also, of course, become familiar with all sections of this manual that apply to your communication needs. The information presented in all remaining chapters is designed to aid experienced users as well as users who are new to communications.

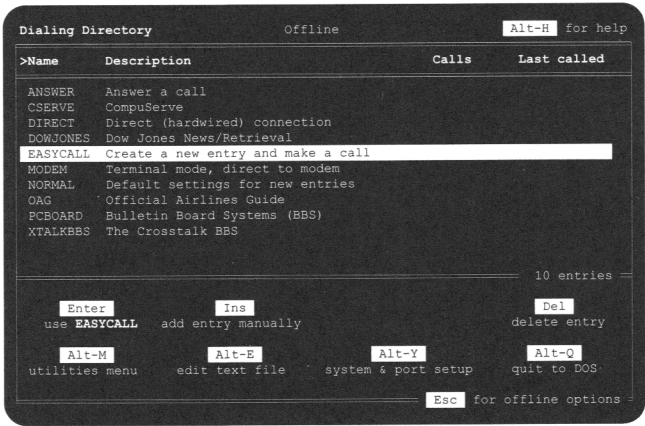
3.2 The Dialing Directory

For a PC to communicate with any host system, its communications software must have the flexibility to match host system requirements (such as communications speed). It must also have access to such basic information as the host system's phone number.

CROSSTALK Communicator stores these settings in its Dialing Directory, which functions as your "auto-dialer" for computer calls. Once

you've set up an entry, it remains available, along with all other entries you've defined, for use whenever you need to call the host system -- you do not have to repeat a setup process every time you call a host system.

When you start up the program, the Dialing Directory is displayed immediately, as shown below:



From this screen, you can define Dialing Directory entries and initiate connections with any host system, as described in detail in Chapter 4. As a preview to communications, the following pages show you how to use the XTALKBBS Dialing Directory entry to place a first call to the Crosstalk Communications BBS in our Atlanta office. Provided that you answered all prompts when running CONFIG (Chapter 2), the program is properly configured for you to begin communications.

3.3 Making a Connection Using the Dialing Directory

In this section, we take you through the steps used to connect to the Crosstalk Communications BBS in Atlanta. Before proceeding, make sure your modem is properly connected, powered up, and ready for use.

Use the cursor keys to highlight XTALKBBS in the Dialing Directory and press **Enter** to select it. Since this is the first time you have used the XTALKBBS entry, a brief series of prompts is displayed, requesting further information concerning the connection. Answer each prompt as directed. The last prompt asks if you want to place the call now; press **Enter** for Yes. (Pressing the space bar to change from Yes to No before pressing **Enter** would cause the program to set up a Dialing Directory entry for future calls, but would terminate the process before dialing.)

After you respond with Yes to the last prompt, the program dials the BBS and begins establishing the connection. As it dials, the Setup Screen for the new Crosstalk BBS Dialing Directory entry is displayed, showing the default settings used for the connection. (Information on the Setup Screen is provided in Chapter 4.)

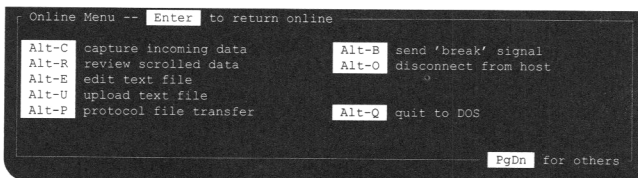
You are logged in automatically. When the BBS main menu appears on your screen, select from it according to the BBS options you want to explore.

While you're on line, take a few minutes to experiment with the mechanisms for disk capture and review of the information you receive, as described in the following section.

NOTE: If you have any problems making this connection, see Appendix B.

3.4 Basic On-line Operations

At any point during communications, you can perform the operations described in the following pages. To start any on-line operation, you simply type its Alt-key combination (hold down **Alt** and press a letter). You can also type **Alt-A** to display the On-line Menu, which serves as a reminder of the Alt-key combinations that initiate online operations.



Capturing Received Information to Disk

When you are about to access information that you want to keep, you can capture it to disk. The information is stored as a text file, which you can access later with the built-in Editor or your word processor.

To start disk capture, press **Alt-C**. Press the space bar to display the word "on" and press **Enter**. This captures to a file of the same name as the current Dialing Directory entry, plus an extension of the current date. (Continue pressing the space bar after you press **Alt-C** if you want to access the options for capturing to an existing file or a new file to which you assign a name.)

When you are finished capturing data to disk, press **Alt-C** again, press the space bar until the word "off" is displayed, and press **Enter**.

Reviewing Received Information

As incoming information scrolls off the screen, it is placed in a Review Buffer where it remains available for re-display, disk capture, or printing.

To display the contents of the Review Buffer, press **Alt-R**. The display pauses, and the status line indicates you are in the Review Buffer. To move through the Review Buffer, press the following keys:

- The **↑** and **↓** cursor keys move one line at a time.
- **PgUp** and **PgDn** move one screen at a time.
- **Ctrl-PgUp** and **Ctrl-PgDn** move to the start and end of the buffer.
- **Ctrl-T** and **Ctrl-B** mark the top and bottom of a block.

While viewing the contents of the Review Buffer, you can press **Alt-A** to display the Review Menu, which provides access to the following functions:

Option:	Purpose:
EXIT	Exits the Review Buffer (you can also exit by pressing Esc)
GOTO	Moves to a specific line in the Review Buffer
FIND	Searches the Review Buffer for a word or phrase
WRITE	Writes a marked block of text to a file or printer
UPLOAD	Uploads the marked block of text

For more information on these options, refer to Chapter 5.

Press **Esc** when you are finished with the Review Buffer.

Other On-line Operations

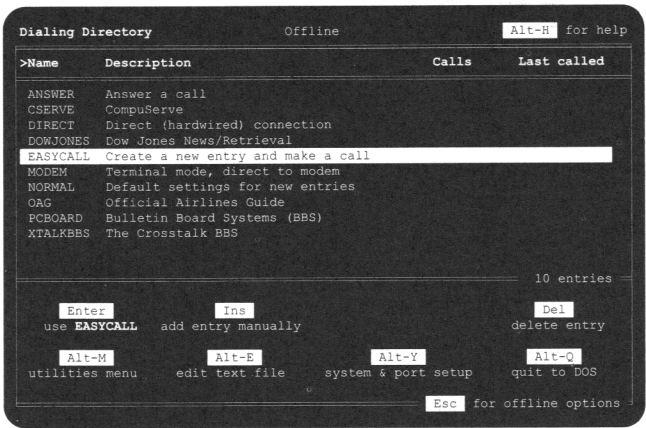
For a complete menu of on-line operations, press **Alt-A**. As indicated by the On-line Menu (**Alt-A**), there are several other operations available while you are on line. You should become familiar with such operations as Upload text file (**Alt-U**), which sends a text file (such as a message you've prepared with the built-in Editor) to the host system, and Protocol file transfer (**Alt-P**), which allows you to exchange complete files of any type with the host system, using error-checking. Further details concerning on-line operations are provided in Chapter 5.

In addition to using this trial communication to become familiar with on-line operations, you may want to spend a few minutes moving through the Crosstalk BBS. This BBS serves as an ongoing source of information for users, and is updated on a regular basis.

Hanging Up and Quitting the Program

When you are finished communicating with the Crosstalk BBS, either give the BBS the command to disconnect, or press **Alt-O** to disconnect and return to the Dialing Directory.

To quit CROSSTALK Communicator and return to DOS, press **Alt-Q**.



These eleven entries, which are used as described in this chapter, provide the following functions:

- ANSWER sets up your system to answer incoming calls from other computers.
- CSERVE is an on-line service entry used to connect to the CompuServe Information Service. Use this entry if you have a CompuServe account.
- DIRECT lets you connect via cable to another computer without a modem.
- DOWJONES is an on-line service entry used to connect to the Dow Jones News/Retrieval service. Use this entry if you have a Dow Jones account.
- EASYCALL helps you to automatically create new Dialing Directory entries and establish communications in a single operation. Use EASYCALL to contact any other system, from information services and bulletin boards to a corporate mainframe.
- MODEM is used to connect directly to the modem so that you can issue modem commands manually.

- **NORMAL** contains modifiable "default" communication settings which are used in each new Dialing Directory you create (including those created with **EASYCALL**).
- **OAG** is an on-line service entry used to connect to the Online Air Guide. Use this entry if you have an OAG account.
- **PCBOARD** is used to connect to PC systems running the **PCBOARD BBS** (Bulletin Board System) software. When you choose this entry you are prompted for information about the system, including its name and description of the BBS you are calling.
- **XTALKBBS** is used to connect to the Crosstalk Communications BBS in Atlanta, GA. The Crosstalk BBS provides updated information and files for all Crosstalk Communications products. The use of this entry is described in Section 3.3.

The Dialing Directory displays helpful information regarding each entry's use. Each entry lists its name, description, phone number, the number of calls made with this entry, and the date and time on which you last called.

The lower portion of the screen lists the keystrokes associated with Dialing Directory functions. These functions are described throughout this and subsequent chapters, within the context of the operations they perform.

4.2 Setting Up and Calling with a Supplied Entry

Of the eleven supplied entries discussed in the previous section, six can be used to call on-line services: **CSERVE**, **DOWJONES**, **OAG**, **PCBOARD**, and **XTALKBBS**.

The **XTALKBBS** and **PCBOARD** entries are both used to call Bulletin Board Systems (BBS). The **XTALKBBS** entry, used as described in Chapter 3, allows you to call the Crosstalk Communications BBS.

The **PCBOARD** entry allows you to call any other BBS system which is running the **PCBOARD** BBS software. When you choose this entry, you

Setting Up and Calling an Information Service

The first group of options available when you select EASYCALL from the Dialing Directory are used for communications with popular information services. If you are not familiar with these services, refer to their literature which may be supplied with this product; many users find them an exceptional resource and one of the primary benefits of telecomputing.

Before you can actually dial into any of these services, you must sign up for an account. At sign-up time, you will be given such information as a telephone number, password, and user ID, which are needed before you can establish your first connection.

Once you have this information, you're ready to use EASYCALL to create a Dialing Directory entry, place the call, and log in to the service.

Select EASYCALL from the Dialing Directory by highlighting it and pressing **Enter**. Then, highlight the name of the information service you wish to contact and press **Enter**.

You'll see a series of on-screen prompts for information about the call. Respond to each prompt as directed on screen. (Press **Esc** if you want to quit at any time.)

Answer Yes when asked if you want to place the call now (the last prompt), and the program begins dialing the information service, establishes the connection, and logs you in. You are now communicating with the host system and can interact with the service as described in the service's literature, or as guided through the service's menus that appear on your screen. For details on other operations you can perform during communications, refer to Chapter 5.

Setting Up and Calling a Bulletin Board System

Chapter 3 guides you through the process of using a pre-defined Dialing Directory entry to contact the Crosstalk BBS. There are many other BBSs available throughout the U.S. (For more information on BBSs in your area, contact a local user's group or consult your computer dealer.)

Once you have the phone number of a BBS to contact, select EASYCALL from the Dialing Directory. From the next menu that appears, select Bulletin Board System, then A Different BBS System. A series of on-screen prompts appears; respond to each prompt as directed on screen.

Select Yes when asked if you want to place the call now (the last prompt) to begin dialing and establishing the connection. After the connection is made, you may have to press  once or twice to get the BBS computer's attention. Once the BBS greets you, communication is fully established; log on according to its procedures, and proceed according to instructions displayed on your screen. For details on other operations you can perform during communications, refer to Chapter 5.

As mentioned in Section 4.1, you can also call a PCBOARD-equipped BBS with the PCBOARD Dialing Directory entry. When you select the PCBOARD entry, CROSSTALK Communicator prompts you for information about the BBS, and optionally saves the information you enter into a Dialing Directory entry with the name you choose.

Setting Up and Calling Other Systems

There are many kinds of host systems you'll want to contact other than information services and BBSs. The final option on EASYCALL's initial menu lets you set up and place a call to any type of system that is not specifically listed -- such as another PC or a corporate mainframe or minicomputer.

When you're ready to establish a connection with such a system, select EASYCALL from the Dialing Directory. From the next menu, select "System not listed above."

As with other EASYCALL options, you're presented with a series of prompts for information about the connection. In this case, you're also asked to select the Terminal type and Protocol to use for the connection.

The following are general guidelines to terminal and protocol selection, and will be all the information you need in most cases. (If you need additional information on terminal and protocol modules and their

options, refer to Appendix C; to adjust any options in the Dialing Directory entry created by EASYCALL, see "Creating and Modifying Dialing Directory Entries" in Section 4.4.)

- *Terminal:* Choose the terminal type you need to emulate. The DEC terminal module is the most commonly used and offers emulation of DEC VT52, VT100, VT102, VT220, and VT320 terminals. DEC offers a communication with a wide variety of hosts, including other PC's. If you're not sure which DEC terminal the host requires, try the default setting of VT102 first. More detail on the DEC module can be found in Appendix C.

The ANSI terminal module is generally used for communications with bulletin board systems (BBS), and supports ASCII color graphics. More detail on the ANSI module can be found in Appendix C.

The REMOTE2 terminal module allows you to use CROSSTALK Communicator to call into a PC equipped with our Remote²® Host program so that you can remotely use the Host PC. This setup gives you access to all applications on the Remote² Host system, and lets you operate the remote PC as if you were right in front of it. Remote² Host is often used for remote software and PC user support, and by users who need access to their PC systems from a remote location.

The other terminal options are IBM3101, TTY, and Televideo. These terminals also have more specialized uses and are described in detail in Appendix C.

- *Protocol:* If you will exchange files with the host system, choose the file transfer protocol to use. Each protocol is suited to a particular use, as described in Chapter 5; the most commonly used is XMODEM (and its variants, including YMODEM), the protocol supported by nearly all systems that communicate asynchronously. Other protocol modules are CSERVEB, KERMIT, and ZMODEM.

After selecting the modules, you're asked if you want to place the call now. Respond with Yes (unless you would prefer simply to create a Dialing Directory for later use).

After responding with Yes, the program begins dialing and establishes the connection. You are now communicating with the host system and can interact with it according to its procedures. (If you are communicating with another PC user, you can begin typing information to that user; any information the other user types appears on your screen.) For details on other operations you can perform during communications, refer to Chapter 5.

4.4 Setting Up and Calling Manually

The previous sections of this chapter showed you how to use EASYCALL to create Dialing Directory entries and initiate calls. If you prefer, you can work directly on the Entry Setup screen (accessed through the Dialing Directory) to set up a Dialing Directory entry. You can also use the Entry Setup screen to modify any existing Dialing Directory entry, including those prepared by EASYCALL.

In the following pages, you're shown how to display the Entry Setup screens for new and existing entries, followed by an overview of the Entry Setup options available to you as you complete or modify a Dialing Directory entry.

Creating and Modifying Dialing Directory Entries

You can create a new Dialing Directory entry or modify an existing entry whenever the Dialing Directory is displayed.

To create a new entry, press **Ins**. To modify an existing entry, use the arrow keys (or any of the other keys listed on the screen) to highlight the entry you want to modify and press **Alt-S**.

In either case, the Entry Setup screen is displayed, and you can begin adjusting settings as described on the following page.

NOTE: A number of settings are provided on this screen for flexibility. The only items *required* to make an entry usable are Name, Number, and Terminal. For details on all options, see "Entry Setup Overview" later in this chapter.

Entry Setup Offline Alt-H for help

Name:	Description:
Number:	Local: off
Capture: off	Printer: off
DownloadDir:	Script: Filter: Keys:
Device: MODEM	Terminal: ANSI
Port: 1	BBS: off
Speed: 1200 bps	BackSpace: off
WordFormat: 8-N-1	Protocol:

name by which you refer to this Dialing Directory entry

Alt-C Capture Setup Alt-U Upload Setup Alt-K Key Setup PgDn Next page

You are setting up a Dialing Directory entry. The information on this screen is normally all that Crosstalk needs to know to place a call.

Ctrl-Enter to accept, Esc to cancel

To modify any setting, move the cursor to it by pressing **Tab** or the arrow keys. There are three ways in which settings can be modified:

- For variables that have no factory-supplied set of options (such as Number), type the setting and press **Enter**.
- For variables that always offer the same set of options (such as Speed), press the space bar to rotate among choices. When the setting you want is displayed, press **Enter**.
- For connection options variables (Terminal and Protocol), press **/** to display a list of choices. Highlight the setting you want and press **Enter**. (Note that when the cursor is on a variable of this type, a message at mid-screen reminds you to press **/** to see the choices.)

When you are finished adjusting settings, press **Ctrl-Enter** to save the changes. (For information on all settings, see "Entry Setup Overview" later in this chapter.)

Adjusting the NORMAL Dialing Directory Entry

When you use EASYCALL or press **Ins** at the Dialing Directory to create a new entry, the settings in the NORMAL entry are used as the starting

point. If you find you need to make the same changes routinely to each new entry, you should adjust the NORMAL setup. Highlight NORMAL in the Dialing Directory, press **(Alt-S)**, and make the necessary modifications, using the following section as a guide.

The modified NORMAL setup will then apply to all new entries you create.

Entry Setup Overview

When you modify an existing entry (**(Alt-S)**) or create a new entry (**(Ins)**), the Entry Setup screen is displayed as shown below, and you can begin making any necessary modifications. In some cases, you may need to enter only a Name, Description, and phone Number; further changes depend upon the communications to be conducted.

NOTE: This screen lists the entry's "major" variables, the options you are most likely to want to address. As noted at the lower right, you can press **(PgDn)** for another screen. This second screen's variables rarely need to be changed; for information on them, use the Help system. (Other screens, available with Alt-key combinations as indicated on the bottom of the Entry Setup screen, are noted later in this chapter.)

The screenshot shows the 'Entry Setup' screen with the following layout:

- Title Bar:** 'Entry Setup' on the left, 'Offline' in the center, and 'Alt-H for help' on the right.
- Fields:**
 - Name:** A text field for the entry name.
 - Description:** A text field for the entry description.
 - Number:** A text field for the phone number.
 - Local:** A toggle switch, currently set to 'off'.
 - Script:** A text field for the script name.
 - Capture:** A toggle switch, currently set to 'off'.
 - Printer:** A toggle switch, currently set to 'off'.
 - Filter:** A text field for the filter name.
 - DownloadDir:** A text field for the download directory.
 - Keys:** A text field for the key sequence.
 - Device:** A dropdown menu, currently set to 'MODEM'.
 - Terminal:** A dropdown menu, currently set to 'ANSI'.
 - Protocol:** A dropdown menu.
 - Port:** A dropdown menu, currently set to '1'.
 - BBS:** A toggle switch, currently set to 'off'.
 - Speed:** A text field, currently set to '1200 bps'.
 - BackSpace:** A toggle switch, currently set to 'off'.
 - WordFormat:** A text field, currently set to '8-N-1'.
- Instructions:** A line of text below the fields: 'name by which you refer to this Dialing Directory entry'.
- Navigation Buttons:**
 - Alt-C:** Capture Setup
 - Alt-U:** Upload Setup
 - Alt-K:** Key Setup
 - PgDn:** Next page
- Footer:**
 - A line of text: 'You are setting up a Dialing Directory entry. The information on this screen is normally all that Crosstalk needs to know to place a call.'
 - A line of text: 'Ctrl-Enter to accept, Esc to cancel'.

The following paragraphs provide information on the major Entry Setup variables.

Name: The entry Name can contain up to 8 characters of your choice. Use a name that will help you remember the use of that entry.

Description: The Description can be up to 250 characters. It serves as an extra on-screen reminder of the Dialing Directory entry's purpose.

Number: Enter the telephone number to dial, using up to 250 characters. You may use hyphens to make numbers more readable (e.g., 404-555-2346). Note that some modems, including Hayes compatibles, allow a maximum of 40 characters in a telephone number.

If a host has multiple telephone numbers, you may enter them separated by semicolons. For example, if the host can answer calls at both 555-2346 and 555-2347, you can enter the number as 555-2346;555-2347. CROSSTALK Communicator will alternate the number it dials until it achieves a connection.

NOTE: If you specified an OutNumber (for outside line access) when running CONFIG and do *not* want it used in dialing, place an "X" at the beginning of the number.

If you did **not** specify an OutNumber when running CONFIG, and need to dial a 9 to get an outside line from your phone system, place "9," at the beginning of the number (e.g., 9,555-2346).

(In the example 9,555-2346 Number above, the comma following the 9 causes a two-second pause in dialing to allow time for the second dial tone. Refer to your modem documentation for other dial modifiers you can include in phone numbers.)

Local: Leave this set to Off for dial-up, modem communications. Change to On only if you want to issue commands to the modem or are directly connected to another computer via cable.

Capture: Change this to On only if you want *all* information received during communications to be automatically routed to a disk at your PC. If you leave this set to Off, you can selectively capture information, as described in Chapter 5.

Printer: Change this to On only if you want *all* information received during the communication to be automatically routed to your printer. If you leave this set to Off, you can selectively print information, as described in Chapter 5. (Note that printing can slow down communications, as printers handle data much more slowly than it is received at your computer. It is generally more efficient to capture data to disk first, then print later.)

DownloadDir: If you have a specific, existing directory to which you want information captured or downloaded from the host system, enter the directory name here. Enter the directory's complete drive and path name (e.g., C:\CCMRECEIVE), using up to 64 characters.

Selecting the Terminal, Protocol, and Filter Modules

In addition to the variables described above, you use the Entry Setup screen to select the Terminal, Protocol, and Filter modules for each entry. These modules provide extra flexibility, allowing you to communicate and exchange files with a variety of host systems. To select a module, move the cursor to the appropriate screen area, press , and select the module from the list that appears.

The following paragraphs provide general guidelines on module selection; for complete information on the modules and their options, refer to Appendix C.

Terminal: Choose the terminal type you need to emulate. The most commonly used module is DEC (for communications with other PCs or host computers that support VT52, VT100, VT102, VT220, and VT320 terminals). The ANSI module is typically used for communications with bulletin boards. The other terminal module options are IBM3101,

REMOTE2, TTY, and TV. These terminals have more specialized uses. Refer to Appendix C for details on all terminal modules and usage recommendations.

Protocol: If you will exchange files with the host system, choose the file transfer protocol to use. Each protocol is suited to a particular use, as described in Chapter 5; the most commonly used is XMODEM, the protocol supported by nearly all systems that communicate asynchronously.

Filter: A number of filters allow you to control the way data is received and/or displayed. For example, the CONTROL filter strips control characters from incoming data, as described in Appendix C.

NOTE: When you select a Terminal or Protocol module, its settings appear beneath the module name. The default settings will be appropriate for most communications; for information on option settings, refer to Appendix C.

Setting Up Capture, Upload, and Keys

The final options on the Entry Setup screen, *Capture Setup* (Alt-C), *Upload Setup* (Alt-U), and *Key Setup* (Alt-K), pertain to operations covered later in this manual.

Chapter 5 explains Capture and Upload, and provides information on accessing the setup screens for each during communications. There's no need to change the settings for these functions when setting up an entry.

Key setup allows you to enter character strings or commands that will be typed when you press a single key and to remap the keyboard for use with specific host systems. For details on Key setup, refer to Chapter 6.

4.5 Calling a System with an Existing Dialing Directory Entry

To initiate a call from the Dialing Directory, highlight the entry to use on the Dialing Directory and press (Enter). The program begins establishing the connection according to the values entered in the Entry Setup screen. When the host system answers the call, you'll hear an exchange

of signals through your modem's speaker, and your screen will clear. You may need to press **Enter** once or twice to display the prompts or menus offered by the host system.

This procedure is the same whether you select to call a Dialing Directory entry you created manually or with EASYCALL, or by choosing one of eleven factory supplied entries. (In the case of the latter, you may be prompted for information if the entry has not previously been used.)

Once connected, you can begin interacting with the host system according to the options it presents. (If you are communicating with another PC user, you can begin typing information to that user; any information the other user types appears on your screen.) For details on other operations you can perform during communications, refer to Chapter 5.

4.6 Establishing a Direct Connection

The DIRECT Dialing Directory entry is to be used when communicating directly with another PC or any other computer to which your PC is hardwired (i.e., when no modem is used).

To begin the connection, highlight DIRECT from the Dialing Directory. Press **Alt-S** to make any necessary changes to the Terminal and Protocol selections and press **Ctrl-Enter** to confirm your choices. Note that the Device selection for the DIRECT Dialing Directory entry is MODEM. The MODEM device provides communication with an asynchronous devices (serial ports) whether or not there is a modem attached.

After making any necessary changes press **↵** connect using the DIRECT entry. CROSSTALK Communicator will then make the connection and display the terminal screen and status line. You may then type to the other system, exchange files, etc.

If the Dialing Directory is set up as required by the host (e.g., you have the right terminal and connection speed settings selected) you may wish to save the setup under a name other than DIRECT. To do so, press **Alt-S** while connected, enter a new name for the entry, and press **Ctrl-Enter** to save it. (Refer to Appendix E for cabling diagrams used in hardware connections.)

4.7 Issuing Modem Commands

The MODEM entry provides a direct connection to your modem, allowing you to issue modem commands. When you select MODEM from the Dialing Directory, CROSSTALK Communicator connects to the modem and you see the terminal screen and the status line. You can then begin entering commands to the modem. Consult your modem manual for information on available commands and their options. (Refer to Appendix E for modem cabling and configuration information.)

NOTE: When you use MODEM to issue commands to your modem, what you type may not appear on the screen. If this is the case, press **[Alt-S]** to display the Entry Setup screen, and press **[PgDn]**. Set Echo to On, and press **[Ctrl-Enter]** to save the new setting.

4.8 Answering a Call

The operations described so far in this chapter pertain to your calling another computer system. You may also sometimes need to set up *your* system to answer a call, for example, to exchange files with another PC (one PC must answer the other's call).

A special Dialing Directory entry named ANSWER makes your PC available for calls from other systems, even when your PC is unattended. In this "Host" mode, CROSSTALK Communicator presents the caller with a menu that provides access to such operations as switching disk drives and directories, leaving and reading text messages, and transferring files to or from your PC.

Starting Answer Mode

To put your system in answer mode, select ANSWER from the Dialing Directory. This sets up your modem to answer the next call coming in on its line, and displays a "Waiting for call" screen until a call arrives.

Any caller who establishes a connection is presented with the host menu, which offers the following options (these may vary slightly, depending on your Host mode settings as described later). To select from the menu, the caller simply types the letter in parentheses for the desired option:

- *(F)ile directory* displays the names of files in the current directory.
- *(T)ype a text file* displays the contents of a selected text file, much like the DOS command TYPE.
- *(C)hange Host drive/directory* selects the disk drive and directory for further operations.
- *e(X)pert mode* turns the display of the host menu on/off.
- *(G)oodbye* hangs up, leaving your system in answer mode for another call.
- *(R)ead messages* displays the message file to the caller.
- *(L)ease a message* lets the caller type a message, which is then saved to your disk with a date/time stamp and the caller's name.
- *(D)ownload to your computer* lets the caller receive a file from your system.
- *(U)pload to Host computer* lets the caller send a file to your system.

When further input is needed, the caller is prompted accordingly.

Adjusting Host Mode Settings

You can adjust several settings that control host mode and the caller's access privileges. If you will leave your system in answer mode while you're away from it, you should be sure to adjust the settings that control access to your system.

To adjust host mode settings, select ANSWER from the Dialing Directory, and press **[Esc]** when the "Waiting for Call" prompt appears. This displays the host mode setup menu, from which you can adjust settings as follows:

- *Set password* lets you specify a password that any caller must enter before gaining access to your system.
- *Set access restriction level* controls the caller's file access privileges, and offers a choice of *all* (allow appending, creating, and replacing

existing files), *none* (no changes or new files allowed from caller), *append* (allow only appending to existing files), and *create* (allow appending and creation of new files).

- *Set Download Directory* lets you specify a default directory for all files received from callers. If you use this feature, you're given the option of locking callers to *only* this directory.
- *Edit greeting* is used to enter the initial message sent to callers who connect with your system.
- *Edit messages file* lets you leave messages for callers or view messages callers have left for you.

Additional options let you return to answer mode, or terminate answer mode and return to the Dialing Directory.

Creating Your Own ANSWER Dialing Directory Entry

You can also create a custom answer mode Dialing Directory entry, using the process described in Section 4.4. This time, you must also press **PgDn** at the Entry Setup screen to access page 2, and change *Mode* to Answer. After pressing **Ctrl-Enter** to save the entry, you can select it from the Dialing Directory to enter answer mode. With this Dialing Directory entry, the caller is not presented with a Host menu; when the connection is established, you're communicating just as if you had originated the call, and can perform the operations discussed in Chapter 5.

To restrict the caller's access to your files with this method, adjust the setting for Accept (on page 2 of the Entry Setup screen). For information about available settings, use the Help system.

5 Data Operations During Communications

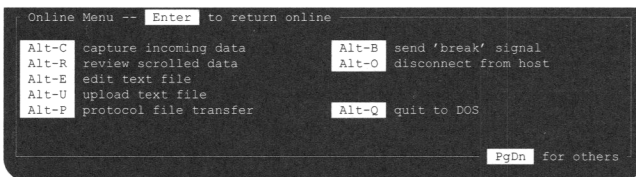
Once you're communicating with a host system, a full range of CROSSTALK Communicator functions becomes available to you. These functions allow you to manage the flow of information between your PC and the host.

This chapter shows you how to perform on-line operations, which include the following:

- sending and receiving files
- creating text messages and uploading them to the host system
- capturing the information you receive to printer and disk
- reviewing previously received information on screen
- using filters
- sending a break signal to the host system
- disconnecting from the host system

To start any on-line operation, you type an Alt-key combination (press **Alt** and hold it down while pressing a letter). For a list of on-line operations and their Alt-key combinations, press **Alt-A** to display the On-line menu, as shown below.

(If you use EASYCALL to contact an information service, pressing **Alt-A** displays a special menu for the service with which you are communicating. In this case, press **PgDn** after **Alt-A** to display the On-line menu.)



These on-line operations are described in the remaining sections of this chapter. (Additional options are displayed if you press **PgDn**; for information on those items, use the Help system.)

NOTE: When you are communicating with a host system, some of your keyboard keys will function differently than you may be used to. This is because your keyboard is emulating the keyboard of an actual terminal. If you want to remap (assign different functions to) keyboard keys and key combinations, refer to Chapter 6.

5.1 Sending and Receiving Files Alt-P

One of the greatest benefits of telecomputing is the ability to exchange files with host computer systems. This allows you to send and receive any file, including word processing documents, spreadsheets, and database files. An exact duplicate of the sending system's file is then stored on the receiving system. Error checking makes sure that the file is not altered in any way during the transmission.

File transfers and error checking are managed by file transfer protocols, which are standardized methods of exchanging files between computer systems. Protocol rules and conventions are implemented the same in various communications software packages; the host system does *not* need to be running a Crosstalk Communications product for you to be able to exchange a file. However, both the sending and receiving system *must* use the same protocol to be able to transfer files.

CROSSTALK Communicator can transfer files with virtually any other personal computer and a large number of mainframes and minicomputers. Its file transfer protocols include CSERVEB (the CompuServe® B+ protocol) XMODEM (which includes common variants such as XMODEM CRC, XMODEM-1K, YMODEM, and YMODEM-G), Kermit, and ZMODEM.

Each protocol is suited to a particular purpose or type of host system, as discussed in this section. If you transfer files only occasionally, you may find the following information sufficient for your needs. The next few paragraphs show you how to send and receive files with basic XMODEM, by far the most widely supported file transfer protocol.

NOTE: During an XMODEM file transfer, the sender and receiver must each enter a file name. For the sender, this is the name of the file as it is actually stored. For the receiver, this is the name under which the file is to be stored when received. These names can be different if you wish.

A later section of this chapter details file transfer with XMODEM variants CRC, XMODEM-1K, YMODEM, and YMODEM-G. (Refer to "Protocol Modules" in Appendix C for specific information on protocol module options.)

Example XMODEM File Transfer

XMODEM was the first file transfer protocol to gain wide-spread acceptance for PCs, and is supported by virtually all communications packages. It is also supported by a number of mainframe and mini-computers, as well as AT&T® Mail and BBS systems. Whenever you're unsure of the file transfer protocol to use, choose XMODEM.

Before initiating a file transfer, you must tell the host system to prepare to receive or send with XMODEM, according to its procedures. If you are communicating with another PC user, simply type a message that says you're ready (the other user must then perform the necessary setup for the other system).

Then, press **Alt-P**. What happens next depends on whether you selected the XMODEM protocol when setting up the Dialing Directory entry:

- If you selected XMODEM when setting up the Dialing Directory entry (see Chapter 4), the File Transfer screen is displayed and you're ready to begin the file transfer.
- If you did not set up the Dialing Directory entry to specify a protocol, a list of file transfer protocols is displayed. Use the cursor keys to highlight XMODEM and press **Enter**. You can then begin the file transfer.

From this point, proceed with the instructions below according to whether you want to send a file or receive a file.

Example of Sending a File

The cursor should be at *send*; press **Enter**. (If the cursor is at *receive*, press the space bar to change from receive to send and press **Enter**.)

In the file name box, enter the name of the file to send. There are two ways to specify the file name:

- type the file name, including a drive and path name, if necessary, and press **Enter**, or
- press **PgUp** to display a directory, use the cursor keys to highlight the file to send, and press **Enter**.

(Note that, since you're using XMODEM, the file will be sent to the host system's current drive and directory. Some other protocols allow you to specify the drive and directory on the host system.)

After you press **Enter** for the file name, the file transfer takes place under the control of XMODEM; you needn't do anything else. A transfer status box is displayed to keep you informed of the file transfer's progress. When the transfer is complete, you are returned to the on-line screen.

Example of Receiving a File

As previously mentioned, the host system must be ready to send a file before you start the receive operation. In CROSSTALK Communicator, the cursor must be at *receive* when you press **Alt-P** (if the cursor is at *send*, press the space bar to change from send to receive). Press **Enter**.

In the file name box, enter the file name under which the file is to be stored on your disk. This does *not* have to be the same as the file name on the sending system. Enter the complete file name, including a drive and path name if you wish, and press **Enter**. If you do not include a path name, the file will be received to the current directory (or to the DownloadDir, if specified in the Entry Setup screen).

After you press **Enter** for the file name, the file transfer takes place under the control of XMODEM; you needn't do anything else. A transfer status box is displayed to keep you informed of the file transfer's progress. When the transfer is complete, you are returned to the on-line screen.

Transferring Files with the CSERVEB Protocol

Use the CSERVEB protocol module when transferring files with CompuServe. When you use CompuServe B protocol, the host system controls the entire file transfer process. For information on CompuServe B file transfer commands, refer to your CompuServe documentation. The most common command for sending files is UPL (upload), and the most common command for receiving files is DOW (download).

After you have established the connection and entered the appropriate commands, CompuServe asks for the name of the file you are sending, or the name you want assigned to the file you receive. Enter a legal DOS file name, including a drive and/or path if necessary.

Reply to any prompts for further input. If you are prompted for a protocol name, select **CompuServe B+ and original B**. Once the transfer begins, a file transfer display appears on your screen. Until the transfer is complete, CompuServe B controls the process.

Refer to "Protocol Modules" in Appendix C for information on CSERVEB protocol module options.

Transferring Files with the KERMIT Protocol

As with most file transfer protocols, Kermit assumes the calling system initiates the file transfer, and the answering system responds.

To transfer files with Kermit, you must tell the host system to prepare to send or receive files, according to its procedures.

If you are communicating with a VAX™, load Kermit from the host's command line by entering the KERMIT command. When the Kermit protocol program's prompt appears, enter the SERVER command to put the host in server mode.

Once the host system is ready to send or receive files, press Alt-P and select Send to send files; to receive files, select Request if you put the host system in server mode, or Receive if you did not put the host system in server mode.

When you send a file, you can specify any valid DOS file name, including drive and path specifiers. Use a wildcard if you want to transfer a group of files. Files are transferred to the host system's current drive and directory.

Example Send:	Result:
BERT.XTS	Sends the file BERT.XTS from your current directory to the current drive and directory on the host system
B:\BIN*.COM	Sends all files with the extension .COM in directory \BIN on your drive B to the current drive and directory on the host system
&	Sends all files from your file list to the current drive and directory on the host system NOTE: & represents the current file list. Refer to Section 7.5 for information on file lists.

If you placed the host system in server mode, select Request to receive files. You can specify drive and path specifiers to determine where on your disk the files will be stored. Files are transferred from the host system's current drive and directory.

Example Request:	Result:
BERT.XTS	Requests the file BERT.XTS from the host system's current drive and directory, and places the file on your current drive and directory
*.XTS B:\BIN	Requests all files with the extension .XTS from the host system's current drive and directory, and places them in directory \BIN on your drive B

If you did *not* place the host system in server mode, select Receive from the File Transfer screen to receive files. You cannot enter a file name, but can enter a drive and path name.

Example Receive:	Result:
[no path name]	Receives the file(s) sent from the host system to your current drive and directory
C:\BIN	Receives the file(s) sent from the host system to directory \BIN on your drive C

After you initiate the Send, Request, or Receive operation, the file transfer proceeds under control of CROSSTALK Communicator and Kermit.

Server Mode

If you placed the host system in server mode before the file transfer, press Alt-P and select Server when the transfer is finished. This is not necessary if you did not put the host system in server mode.

Refer to "Protocol Modules" in Appendix C for information on KERMIT protocol module options.

Transferring Files with XMODEM Variants (Including YMODEM)

Earlier in this chapter, you saw how to transfer a file with XMODEM, the most widely supported file transfer protocol. XMODEM has spawned several variants that offer considerable advantages. Your selection of these protocols depends upon the host computer with which you will transfer files (both systems must use the same protocol) and the nature of the file transfer. Each protocol has its own advantages and appropriate uses. (Refer to "Protocol Modules" in Appendix C for specific information on protocol module options).

CROSSTALK Communicator supports the following XMODEM variants:

- *CRC*. While the original XMODEM protocol uses a simple "checksum" method of error detection, CRC replaces checksum with a more secure Cyclic Redundancy Check error detection method.

In most cases, you can select CRC even if you're not sure whether the host system supports CRC checking. If it cannot, the program automatically switches to checksum error checking using XMODEM.

- *XMODEM-1K*. This XMODEM version increases the efficiency of the transfer by using larger blocks of data.

- *YMODEM*. YMODEM is similar to XMODEM-1K, and also allows you to send multiple files in a single operation. YMODEM is the only XMODEM variant that supports multiple file transfers; all other XMODEM variants transfer files individually. YMODEM is supported by most of the recently developed PC communications programs.
- *YMODEM-G*. This protocol functions exactly like YMODEM in terms of your interaction, but does *not* have error checking capabilities. It was developed for use with modems that feature built-in error checking.

To use an XMODEM variant, you must first display the Protocol Setup screen ((Alt-P) from the Entry Setup screen) and select the variant with the Pmode option. (To use YMODEM-G, set Pmode to YMODEM and set the LinkMode option to G). For more information on the XMODEM protocol module variables, see Appendix C.

The process of transferring a file with any XMODEM variant is very similar to the standard XMODEM transfer discussed earlier. When ready to begin the transfer, you tell the host system to prepare to receive or send, according to its procedures. (When you are communicating with another PC user, this generally means simply typing a message that says you're ready; the other user must then issue the necessary commands for the host system.)

When the other system is ready, you initiate the transfer on your side by pressing (Alt-P) and selecting either *send*, to transfer a file from your PC to the host, or *receive*, to transfer a file from the host to your PC.

The examples in the following pages illustrate the command differences among the XMODEM variants. Please note that all variants of XMODEM (except for YMODEM) require that you supply a file name to *both* your system and the host system. If you are receiving a file from a bulletin board system, for example, you must tell the BBS which file to send, and tell CROSSTALK Communicator the file name under which it is to be saved on your system. These names can be different if you wish.

The YMODEM protocol is the exception to this; you simply Receive files from the host system. The received files are then stored under their original names.

Sending a File with Any XMODEM Variant

When you send a file with any XMODEM variant, you can specify any valid file name (including drive and path specifiers). With YMODEM, you also have the option of using wildcard file names. Files are sent to the host system's current drive and directory.

The following example Send file names are valid for all XMODEM variants, including YMODEM.

Example Send:	Result:
BERT.DOC	Sends the file BERT.DOC from your current directory to the host system's current drive and directory
C:\BERT.DOC	Sends the file BERT.DOC from your drive C to the host system's current drive and directory
C:\REPORTS\BERT.DOC	Sends the file BERT.DOC from directory \REPORTS on your drive C to the host system's current drive and directory

Sending Multiple Files with YMODEM

With YMODEM, which sends multiple files, the following are also valid Send file names.

Example Send:	Result:
*.DOC	Sends all files with the extension .DOC from your current drive and directory to the host system's current drive and directory
&	Sends all files from your file list to the current drive and directory on the host system NOTE: & represents the current file list. Refer to Section 7.5 for information on file lists.

Receiving Files with CRC and XMODEM-1K

Select Receive from the File Transfer screen to receive a file with any XMODEM variant except YMODEM. You can specify any legal DOS file name, including a drive and path specifier. You cannot include wildcards; they are available only with YMODEM.

With all variations of XMODEM except YMODEM, you can receive a file under a different name than the one used at the host system. To do this, enter the *new* name as the file name when you select Receive.

Example Receive:	Result:
BERT.DOC	Receives the file BERT.DOC from the host system to your current drive and directory
B:\BERT.DOC	Receives the file BERT.DOC from the host system to the current directory on your drive B
B:\REPORTS\BERT.DOC	Receives the file BERT.DOC from the host system to directory \REPORTS on your drive B

Receiving Files with YMODEM

When you select Receive from the File Transfer screen to receive files with YMODEM, you do not enter a file name (it is supplied by the host), but you can specify a destination.

Example Receive:	Result:
[no file name]	Receives the file(s) that the host system is sending to your current drive and directory
C:\CCM\DOC	Receives all files that the host system is sending, and places them in the subdirectory \CCM\DOC of your drive C
*.DOC	Receives all files with the extension .DOC from the host system's current drive and directory, and places them on your current drive and directory
*.DOC C:\CCM\DOC	Receives all files with the extension .DOC from the host system's current drive and directory, and places them in the subdirectory \CCM\DOC of your drive C

After you initiate the Send or Receive operation, the file transfer proceeds under control of the selected protocol.

Transferring Files with the ZMODEM Protocol

You can send and receive files with the ZMODEM protocol, but ZMODEM assumes that the sending computer, regardless of whether it is the answering or calling system, is controlling the file transfer. The Receive operation is used only when the receiver has set Autostart to None in the Protocol Setup screen ((Alt-P)).

When you send files, you can specify any valid file name, including drive and path specifiers. Wildcards are allowed if the host system supports them.

To send a file with ZMODEM, instruct the host system that you are ready to send files, according to its procedures. If you are communicating with another PC user, this generally means simply typing a message that says you're ready. Then, press (Alt-P), select Send, and enter the name of the file to send.

Example Send:	Result:
C:\TEXT\NEWS.DOC	Sends the file NEWS.DOC from directory \TEXT on your drive C to the host system's current drive and directory
NEWS.DOC	Sends the file NEWS.DOC from your current directory to the host system's current drive and directory
B:*.XTS	Sends all files with the extension .XTS from your drive B to the host system's current drive and directory
&	Sends all files from your file list to the current drive and directory on the host system NOTE: & represents the current file list. Refer to Section 7.5 for information on file lists.

When you receive files with ZMODEM, you do not need to press (Alt-P) to start (unless you have set Autostart to None). The sending system controls the transfer; all you need to do is tell the host system you're ready to receive, according to its procedures. When communicating with another PC user, this generally means simply typing a message that says you're ready. The host system takes over and controls the file transfer process.

If you have set Autostart to None, however, you must press Alt-P and select Receive to receive a file. You do not enter a file name (it is supplied by the sending system), but you can specify a destination.

Example Receive:	Result:
[no path name]	Receives the file(s) that the host system is sending to your current drive and directory
C:\CCM\SCRIPT	Receives all files that the host system is sending, and places them in the subdirectory \CCM\SCRIPT of your drive C

Refer to "Protocol Modules" in Appendix C for information on ZMO-DEM protocol module options.

5.2 Creating Text Files Alt-E

CROSSTALK Communicator includes a built-in text Editor. You can use this Editor while on line to create and upload electronic mail messages to a host editor or mail system (as well as using it off line to create ASCII files, as explained in Chapter 7).

NOTE: Creating messages on line is best suited for communications with local computers, such as when you're using an electronic mail system on a corporate mainframe. When you're communicating long distance or with a system that charges for connect time, you should prepare messages before establishing a connection, if possible. The Editor works the same when you're off line as when you're on line.

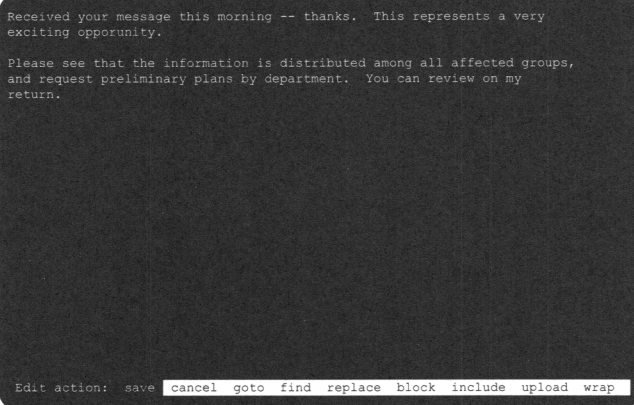
To start the Editor while on line, press Alt-E. You're prompted for a file name; enter the name of an existing file to edit, or enter a new file name to create a new file. (If it's an existing file and you're not sure of the exact file name, press PgUp to display a directory, highlight the file name, and press Enter.)

When the Editor starts up, you'll see the first screen of the file. The status line indicates that pressing Alt-A displays the Editor Menu. It also shows the file name and the line and column number in which the cursor is positioned, and indicates that the Editor is in insert mode.

To edit the file, use the cursor keys to move to the point where you want to type, and begin entering text. "Ins" appears on the status line to indicate that you are in insert mode; each character you type is inserted into the file, and all characters to the right of the cursor shift to make room. You can also put the Editor in overtyping mode; each character you type replaces the character at the cursor position. To switch between insert and overtyping modes, press Ins.

Editing Options

As you create the message, you'll find the options on the Editor Menu handy. Press Alt-A to display the Editor Menu.

A screenshot of a terminal window showing a text editor. The background is dark, and the text is light-colored. The text in the editor reads: "Received your message this morning -- thanks. This represents a very exciting opportunity." followed by a blank line, and then "Please see that the information is distributed among all affected groups, and request preliminary plans by department. You can review on my return." At the bottom of the window, there is a status line that says "Edit action: save" followed by a menu of options: "cancel goto find replace block include upload wrap".

```
Received your message this morning -- thanks. This represents a very
exciting opportunity.

Please see that the information is distributed among all affected groups,
and request preliminary plans by department. You can review on my
return.

Edit action: save cancel goto find replace block include upload wrap
```

For information on the use of Editor Menu options, as well as special "control keys" that provide additional conveniences, refer to Chapter 7, or press Alt-H.

When you are finished typing the message you want to send, select Upload from the Editor Menu to send the message to the host system. (To adjust upload settings or upload a file you've already created and saved to disk, see the following section.)

5.3 Uploading a Text File **Alt-U**

In the previous section, you saw how to create a message while on line, and how to immediately upload the message to a host's editor or mail system. You can also upload a text message that you've previously created and saved to disk, as described below.

NOTE: This operation applies only to text messages (ASCII), such as those you create with the built-in Editor or with a word processor capable of ASCII output, and does not include error-checking. For error-checking methods of sending text and other kinds of files, including text that is formatted with a word processor, refer to "Sending and Receiving Files" earlier in this chapter.

You can upload a text file any time the host system is prepared to receive a typed message; uploading sends the text, just as if you were typing it very rapidly.

To begin, press **Alt-U**. Enter the name of the file to upload, including a drive and path name if necessary, and press **Enter**. (If you're not sure of the exact file name, press **PgUp** to display a directory, highlight the file name, and press **Enter**.) The text file is immediately sent to the host system.

NOTE: For information on viewing a file before uploading, see "Browse" in Chapter 7.

Controlling Upload

You may occasionally encounter a host system that is not able to receive the text as quickly as it is uploaded, or one that does not receive blank lines or tabs as expected. When this happens, you can control the upload

with selections from the Upload Menu. After pressing **Alt-U** to display the prompt for the file name to upload, press **Alt-U** again to display the Upload Setup screen.

This screen lists a number of options for controlling the upload. Those most likely to need attention are Lwait and Cwait pacing options (for hosts that can't keep up with upload) and BlankEx and TabEx (for systems that drop blank lines or tabs). For information on these and the LineDelim and LineTime Upload Setup screen variables, refer to the Help system.

5.4 Capturing Received Information to Disk **Alt-C**

While you're communicating with host systems, you'll often encounter information that you want to save to disk for later use (as when you are reading an important electronic mail message). When this is the case, you can capture the information to disk. The information is captured as a text file, which you can later access with the built-in Editor or your word processor.

To start disk capture, press **Alt-C**. Press the space bar to display the word "on" and press **Enter**.

NOTE: This captures to a file of the same name as the current Dialing Directory entry, plus an extension of the current date. Continue pressing the space bar after you press **Alt-C** if you want the options for capturing *to* an existing file or a *new* file; in either case, press **Tab** and enter the name of a file to capture to, including a path name if necessary.

If you want to capture to a specific directory, you can specify the directory name for the DownloadDir variable of the Entry Setup screen (as described in Chapter 4). DownloadDir is used unless you specify a directory when entering the file name.

From this point, until you turn Capture off, all information you receive is saved under the file name you entered. You can access this file later with the built-in Editor or your word processor.

While text is being captured, it is held temporarily in a capture buffer. When the capture buffer becomes full, text is written to disk. This buffer is normally 1 Kbyte (1024 bytes) in size, but you can change the size by setting the CBUFSIZE variable on the Capture Setup screen (press **Alt-C** twice). If you typically capture large amounts of information and find communications slow down when disk writing begins, increase the size of the capture buffer.

When you are finished capturing data to disk, press **Alt-C** again, press the space bar until the word "off" is displayed, and press **Enter**.

5.5 Printing Received Information

Just as you can capture received information to disk, you can send received information immediately to your printer. You should be aware, however, that extensive printing while on line can significantly slow down communications; since most printers handle data at a much slower rate than the speed at which the computer receives it, you may see pauses while the program waits for the printer to "catch up." It is usually best to capture to disk first, then print later. Use on-line printing for smaller quantities of information.

To initiate on-line printing, press **Alt-S** to display the Entry Setup screen, and set Printer to On. All subsequently received information is sent directly to your printer.

To stop on-line printing, press **Alt-S** to return to the Entry Setup screen, and set Printer to Off. (If you forget to do this, future communications with this Dialing Directory will begin with on-line printing enabled.)

5.6 Reviewing Received Information **Alt-R**

All the information your computer receives during communications is displayed on your screen, and scrolls up the screen as new information is received. Information that scrolls off the screen is stored in a Review Buffer, where it remains available for re-display, disk capture, or printing.

The Review Buffer holds 48K of data. When the buffer becomes full, newer information is added to it and the oldest information is discarded.

To display the contents of the Review Buffer, press **Alt-R**. You can move through the Review Buffer by pressing the following keys:

Key:	Purpose:
↑	Moves up one line
↓	Moves down one line
PgUp	Moves up one screen
PgDn	Moves down one screen
Ctrl-PgUp	Moves to start of buffer
Ctrl-PgDn	Moves to end of buffer
Ctrl-T	Marks top of block
Ctrl-B	Marks bottom of block

When you are finished viewing the Review Buffer contents, press **Esc**. Note that communication with the host system is suspended while the review buffer is active.

The Review Menu

While viewing the contents of the Review Buffer, press **Alt-A** to display the Review Menu, which provides access to the functions listed in the following table.

Option:	Purpose:
EXIT	Exits the Review Buffer (you can also exit by pressing Esc)
GOTO	Moves to a specific line in the Review Buffer
FIND	Searches the Review Buffer for a word or phrase (see below)
WRITE	Writes a marked block of text to a file or printer (see below)
UPLOAD	Uploads a marked block of text (see "Uploading a Text File" earlier in this chapter)

Capturing and Printing Blocks of Text

While you are viewing the Review Buffer contents, you can mark a block of text and write it to a file or print it.

To mark a block of text, move the cursor to the top line to mark and press **Ctrl-T**. Then, move the cursor to the bottom line to mark and press **Ctrl-B**.

To write the block to a file, press Alt-A to display the Review Menu, select WRITE, and enter the name of the file you want to contain the block.

Printing a block is the same process as writing the block to a file, except that you enter PRN as the name of the file to write to.

Finding Specific Text in the Review Buffer

If you want to locate a specific word or phrase in the Review Buffer, press Alt-A to display the Review Menu, and select Find. Type the word or phrase you want to locate, and press Enter. Use the space bar to select whether to search Forward or Backward from the current cursor position and press Enter, then press the space bar to select whether upper case or lower case are to be watched or ignored and press Enter. The cursor will move to the first occurrence of the selected word or phrase in the chosen direction.

For further Find operations, use the keys listed in the following table.

Key:	Purpose:
Ctrl-N	Repeats the last find (same direction)
Keypad -	Repeats the last find (backward)
Keypad +	Repeats the last find (forward)
Keypad *	Displays the Find Menu again

5.7 Filtering Data Alt-F

Filters are used to examine or change data received from a host system. When a filter module is loaded, it is "plugged in" between the device and terminal modules to perform the operation indicated by the filter. Filters operate on data during interactive typing with the host system and during data capture (plus ASCII text uploads for the CASE, GERMANY, and SCANDNVN filters).

Note that filter modules are never required for communication. They are provided as a convenience for CROSSTALK Communicator users who want to perform operations on data automatically during a communications session. CROSSTALK Communicator offers five filter modules:

- The CASE filter offers conversion of all uppercase characters to lowercase or all lowercase characters to uppercase in incoming data, outgoing data, or both.
- The CONTROL filter removes selected control characters from incoming data.
- The DEBUG filter displays a separate window in which incoming data is displayed in one of four formats: *char* makes control characters visible, *ascii* shows control characters as ASCII mnemonics, *hex* shows the hexadecimal equivalent of all characters, and *dec* shows the decimal equivalent of all characters.
- The GERMANY filter translates both incoming and outgoing characters to their equivalents or replacements in the German character set.
- The SCANDNVN filter translates both incoming and outgoing characters to their equivalents or replacements in the Scandinavian languages character set.

For complete information on the filters, refer to Appendix C.

To load a filter, press **Alt-F**. Press **/** and, with the desired filter highlighted, press **←**. Proceed with communications as usual. You can later press **Alt-F** again to change settings or select another filter.

NOTE: You can also load a filter when setting up a Dialing Directory entry (see Chapter 4), which means it is used for all communications with that entry. If you do this, pressing **Alt-F** while on line displays the Filter Setup screen.

5.8 Sending a Break Signal **Alt-B**

Some host systems require you to send a break signal after making a connection. Pressing **Alt-B** sends a break signal for 200 milliseconds. You can adjust the break signal's duration by setting the Breaklength variable in the Device Setup screen (**Alt-D**).

Disconnecting Alt-O

5.9 Disconnecting Alt-O

When you are finished communicating, follow any log-off procedures for the host system and press Alt-O to disconnect. You can then quit the program (Alt-Q) or establish another connection.

6 Automating Communications

In the previous chapters, you learned how to manage communications tasks manually; in the following pages, you learn how to save time by automating operations you perform routinely.

The first section of this chapter shows you how CROSSTALK Communicator can record a communications process as you perform it, then automate that process for you when you need to repeat it. The second section covers the functions that save time by allowing you to customize your keyboard and associate keys with operations.

None of the information in this chapter is actually required for program use, but all users should become familiar with the advantages offered by automating communications. The more familiar you are with these functions, the more able you will be to communicate with a minimum of effort and time.

6.1 Remapping the Keyboard Alt-K

CROSSTALK Communicator allows you to remap the function keys (F1, F2, etc.) and Ctrl and shift function key combinations (Ctrl-F1, Shift-F2). This offers two important advantages:

- You can reassign keyboard functions for a terminal emulator. Refer to Appendix C for each terminal module's keyboard map; a mapping is illustrated with a table of PC keyboard keys and the character(s) sent when each is pressed. For each key you want to remap, follow the procedure in this section to specify the character(s) to send when the key is pressed.
- You can have the program automatically type a sequence of key-strokes when you press a single key. For example, if you use an electronic mail system and often enter the command READ INBOX, you can have a key such as F1 automatically type READ INBOX to the host system when you press it.

Key assignments are associated with Dialing Directory entries. The remapping is in effect only while you use that entry to communicate, and does not affect other operations.

To remap the keyboard, display the Dialing Directory. Highlight the entry for which you want to remap and press Alt-S. From the Entry Setup screen, press Alt-K to display the Keys Setup screen, as shown below.



The initial screen lets you remap function keys F1 through F10 (plus F11 and F12 if your keyboard has them). Pressing PgDn rotates through the screens for the other keys you can remap (Shift, Ctrl, Alt, and keypad keys).

To remap a key, simply display the Keys Setup screen containing the key to remap, and move the cursor to that key.

For *definition* (the left part of the line), type the keystroke(s) you want to have typed when that key is pressed. When you want the Enter key to be typed, use the "^M" character combination (e.g., READ INBOX^M). For *description* (the right part of the line), you can enter text that describes the key's use; the description will serve as a reminder on the On-line Menu.

NOTE: To enter a Ctrl-key combination for the definition, type ^ followed by the character. The caret (^) does not appear until

you type the character that completes the combination. If you want the caret itself to be typed, precede it with a `'` (back-quote) before pressing `^` (e.g., `'^`).

When you are finished remapping keys, press `Ctrl-Enter`, and enter a file name to use for storing the key assignments (the extension `.XTK` is automatically added to the file name). The Entry Setup screen is displayed again; enter this key assignments file name in the Keys variable. The remapping will now take effect whenever you use that Dialing Directory entry.

You can also enter this file name in the Keys variable of other Dialing Directory entries for which you want to use the same key remapping.

6.2 Preparing Logon Scripts with LEARN

A "script" is a text file containing commands that automatically log you on to a host computer. To create a script, you turn on the LEARN facility before establishing a connection. LEARN records what happens, once you connect to the host and start responding to prompts, and stores the process in a script file. That script is then run the next and each subsequent time you use the same Dialing Directory entry to establish a connection.

To start LEARN, press `Alt-M` at the Dialing Directory, and select LEARN. From the menu that appears, proceed as follows to begin establishing a connection with the host system:

- choose "Select a Dialing Directory entry" if you have already set up a Dialing Directory entry for this host system. The Dialing Directory appears; highlight the entry to use and press `Enter` to begin making the call.
- choose "Add a Dialing Directory entry (EASYCALL)" if no Dialing Directory entry exists for the host. In this case, you're prompted for information needed to create a Dialing Directory entry before the call is placed. This procedure is essentially the same as described for EASYCALL under "Setting Up and Calling Other Systems" in Chapter 4.

From this point, you should interact with the host system just as you normally would. While LEARN is running, you are actually typing to LEARN. When you press **Enter**, LEARN records the prompt to which you responded, as well as your response, and forwards your response to the host system.

Once you are completely on-line with the host system, press **F10** to terminate LEARN for the current task. A series of prompts helps you complete the script and assign a name to it.

The name you assigned to the script is entered in the Script variable of the Dialing Directory entry's Entry Setup screen. This causes the script to run automatically whenever you establish a new connection using that Dialing Directory entry. After the script runs, the program remains in the state it was when you finished LEARN.

Hints for Preparing Scripts with LEARN

- Some host computers present different prompts from time to time. Since scripts reply to specific prompts, any LEARNed script will fail to operate if an unfamiliar prompt appears. If this happens, you can always press **Ctrl-Break** to stop the script. If a host system changes its logon procedure, simply re-LEARN the script.
- With many hosts, especially bulletin board systems, you should not use LEARN the first time you log on. First-time users often are presented with different prompts from those for established users.
- If you make errors while LEARN is running, you should re-LEARN the script, even if logon is successful. Otherwise, the LEARNed script will repeat the errors with each logon, slowing communications. (You may use the built-in editor (**Alt-E**) to edit the script to correct the errors. See the following section for information on scripts and commands.)

6.3 Writing Your Own Logon Scripts

Previous sections of this chapter explain how to create logon scripts with LEARN. This section provides you with basic knowledge which will enable you to create your own custom login scripts, or even edit scripts created with LEARN.

The scripting language supported by CROSSTALK Communicator is called CASL™, and was originally introduced in our CROSSTALK Mk.4 product. The basic CASL elements covered in this section provide everything you need to create effective login scripts. If you want the ability to automate operations beyond simple logins, including the ability to create custom applications, consider a conversion to the CROSSTALK Mk.4 product (as described in literature accompanying this package).

How Scripts Work

When you connect to a host system, you often interact with it by waiting for prompts and entering replies or commands. For example, if the system displays a prompt for a password, it expects you to respond by entering your password to the system.

Simulating manual steps in a script is no more difficult than giving someone else instructions which outline the process. For example, if you were giving the instructions, you might tell another person to wait until a particular prompt or phrase appeared on the screen before entering a response. You do the same thing when writing a script as explained in the following pages. Scripts perform these steps automatically; when you write a script, you prepare a set of instructions for CROSSTALK Communicator to follow.

Getting Started

There are several basic steps involved in script writing. It's always a good idea to start out by taking some time to map out what you want the script to accomplish. For login scripts you can start out by capturing an on-line session by using data capture (see Section 5.4) and log into the host manually so that all the steps are stored in a text file. Turn capture off after you're done logging in.

This procedure provides you with a text file which contains all the prompts the host sent you, and all the information you replied to it (note, however, that any text you typed which did not appear on the screen, such as a password, does not appear in the capture file). You can then print this text file, and use it as a guide for writing your script.

Writing Scripts

This section covers the basics of script writing and script commands. Detailed discussion of each command is provided in the "Script Commands" section at the end of this chapter.

Scripts can be created with CROSSTALK Communicator's built-in text editor or any other editor capable of producing "plain ASCII text" files. As detailed in Section 5.2, the CROSSTALK Communicator editor is invoked with the **Alt-E** keystroke.

If you're editing an existing script, enter the script's name (you may optionally include drive and path information) at the file name prompt displayed by the editor, and the script file will be loaded. If the file name you enter is not found, CROSSTALK Communicator assumes you wish to create a new script and displays a blank editor screen. You may also press **PgUp** at this prompt to select an existing file from a directory display.

NOTE: A script can have any file name but must have a .XTS file name extension. When CROSSTALK Communicator runs the script, it changes it into a form it can interpret and produces a file of the same name with a .XTC extension, as explained in the "Script Compiler" section.

Scripts execute line by line, from top to bottom. The first command in your script should reflect your first action in manually logging into the host, the second line should contain the second action, and so on.

The script elements used most often allow you to wait for information from a host and to send information to a host. The most common login procedures consist simply of "waiting" for text and "replying" with text. The CASL elements that provide a script with this ability are called **WAIT** and **REPLY**.

A script written to handle a login to a typical host would look something like this example:

```
wait for "Name:"
reply "John Smith"
wait for "Password:"
reply "big/hats"
```

There are several items in this example which appear within quotation marks. These items are "arguments" to the WAIT and REPLY commands, and provide the information with which the command works.

The argument of the first WAIT statement, "Name:", is the text for which the script waits. Script operation pauses when a WAIT statement is encountered, and in this case, the subsequent REPLY is not executed until the host "Name:" prompt has been received. This is just like what you might do when you log in manually; you "wait" for the host to prompt you to enter your name and you then reply with it. (Note that when using WAIT, it is important to select a unique string to wait for from the host, or the script may not operate as desired. See WAIT in "Script Commands" for details.)

Note also that the REPLY command automatically adds a carriage return character to the string it sends to simulate your pressing the  key (this can be suppressed by placing a semicolon at the end of the line; see REPLY in "Script Commands" for details).

CROSSTALK Communicator's Dialing Directory entries each have variables called UserID and Password which appear on page 2 of the Entry Setup screen. These variables allow you to save your ID and password for each host in its entry. If you use these, you can reference them in the script. If your User ID or Password change, you can enter the change in the Dialing Directory entry, without having to edit the script. This also makes the script more general, so that it can be used for more than one service, or distributed for others to use.

The example script from above, using the UserID and Password variables, would look like this:

```
wait for "Name:"  
reply UserID  
wait for "Password:"  
reply Password
```

The WAIT command has many options, but even the simplest form, as shown here, is quite useful. The WATCH command is similar to WAIT, but allows more flexibility. The following is a list of all commands available to you as you prepare a login script (for complete details on each, see "Script Commands" at the end of this chapter).

ALARM	Sounds an alarm or tune on the PC speaker
BYE	Terminates (hangs up) the call
END	Denotes the logical end of a script
IF/THEN/ELSE	Controls program flow based on the value of an expression
JUMP	Transfers script control to the specified LABEL
LABEL	Denotes a named reference point in a script
ONLINE	Indicates whether or not a connection is active
REPLY & REPLY LINE	Sends a string of text to the modem or host
SENDERBREAK	Sends a break signal to the host
TIMEOUT	Indicates the status of the most recent WAIT or WATCH
WAIT	Waits for a string of text from the host or for a keystroke from the local user
WATCH & ENDWATCH	Wait for one of several strings of text from the host
WHILE & WEND	Perform a statement or group of statements as long as a given condition is true

The Script Compiler

CROSSTALK Communicator compiles the source (text) version of scripts before running them. This process generates a file of the same name with a .XTC file name extension.

CROSSTALK Communicator always compiles any script you run if the script has not already been compiled, or if the source is newer than the compiled version (as is the case changes have been made to a script).

Once a script has been compiled, you only need its .XTC version to run it. You can distribute the compiled (.XTC) script to other CROSSTALK

Communicator users who may need to run it. Because the script is compiled, other users cannot change it, and you can retain control of the source (.XTS) script.

You should always keep a copy of the source in case you need to edit the script to make changes or additions. A script that is in compiled form (.XTC) cannot be edited.

Running Scripts

A script used to automate the login sequence for a host can be associated with a Dialing Directory entry by specifying the script name in the entry's Script variable on the Entry Setup screen (**Alt-S**) while the entry is loaded. CROSSTALK Communicator automatically runs this script after connection is established with the host using that Dialing Directory entry.

The **Alt-M** Utilities Menu lists scripts provided with CROSSTALK Communicator, and can also be used to list your own scripts (or scripts generated with LEARN). Only scripts which have been compiled can be added to the Utilities Menu.

CROSSTALK Communicator can also run CROSSTALK Mk.4 scripts that have been added to the Utilities Menu.

Script Commands

The following sections detail the commands required to create login scripts from "scratch."

ALARM

Purpose: Plays a tone on the speaker. Useful for signalling the occurrence of an event, such as the end of a login.

Format: ALARM <integer>

Notes: *integer* may be any number between 0 and 12; values out of this range are ignored. The tunes played may be used to signal an error condition or as an indication that an operation is complete. The alarms are as follows:

Value	Sound
0	Short beep
1	Close Encounters theme
2	3 beeps
3	DK's music
4	4 note "toot"
5	Beethoven's Fifth
6	"Twilight Zone"
7	Dirge
8	"The Deaconess of Detroit"
9	"Popeye the Sailor Man"
10	Fanfare
11	"Up" sound
12	"Down" sound

Examples: `if not online then alarm 7`
Sounds an alarm if there is no connection.

BYE

- Purpose:** Disconnects the current connection.
- Format:** BYE
- Notes:** This command immediately breaks the connection, and works for both dial-up and "local" (hardwire) connections. After disconnecting, CROSSTALK Communicator returns to the Dialing Directory, or to the control of the script that invoked the BYE command.
- Limits:** If the BYE command is issued remotely by a calling computer (i.e., when CROSSTALK Communicator is in answer mode), the connection is broken.
- Examples:** BYE
Terminates the connection (ONLINE will become false).
 wait for "Logged off"
 BYE
The connection is terminated after the Logged off string is received.
- See:** WAIT

END

- Purpose:** Denotes the logical end of a script.
- Format:** END
- Notes:** END is used to mark the logical end of a script. When an END statement is encountered, execution of the script is terminated.
- Examples:** if not online then end
The script ends if ONLINE is not true when the statement is executed.

IF, THEN, & ELSE

Purpose: Controls program flow based on the value of an expression.
Format: IF <expression> THEN <statement group> [ELSE <statement group>]

Notes: The IF and THEN statements allow you to control the flow of the script based on the value of an expression. With ELSE, it is possible to define another direction for the script if the expression does not evaluate as specified.

expression is required, and can be an evaluation or comparison of strings or conditions. *expression* must logically evaluate to either TRUE or FALSE. For example:

```
if online then...
```

and

```
if userid = "striker" then...
```

The OR, AND, and NOT logical operators may be used to modify the evaluation. For example, NOT negates the condition:

```
if not online then...
```

If AND is used, both expressions must be true. In this example, ONLINE must be true, and UserID must be set to "striker":

```
if online and userid = "striker" then ...
```

THEN specifies the statement to perform if the expression or combination of expressions is true.

ELSE is optional and it specifies a statement to perform if the expression is not true. Each ELSE matches the most recent unresolved IF.

You may specify multiple statements after an IF statement. You may specify multiple conditions in an IF statement using the logical operations mentioned above. If the order in which they must be evaluated is important, use parentheses to force the order.

Examples: `if online then alarm 1`

An alarm sounds if ONLINE is true (i.e., if there is a connection).

`if online and UserID = "mforrest" then jump log_in`

If ONLINE is true, and the UserID Dialing Directory variable is set to mforrest, the script jumps to its log_in label. (See JUMP and LABEL.)

```
if online and UserID = "mforrest" then
{
    wait for "your first name: "
    jump log_in
} else {
    end
}
```

If statements may also be broken up into several lines and grouped with braces.

JUMP

Purpose: Transfers program control to a label or line number. JUMP typically follows IF/THEN statements.

Format: JUMP <label>

Notes: *label* must be the name of a program label or a line number. When a JUMP statement is encountered in a script, the script branches to *label*. An error occurs if the label does not exist.

Examples: JUMP MAIN_MENU

Jumps to a label called MAIN_MENU.

See: LABEL

LABEL

- Purpose:** Denotes a named reference point in a script file.
- Format:** LABEL <labelname>
- Notes:** Labels are used in scripts to provide a means of identifying a particular line in a program for reference by the JUMP command.
- labelname* is required. Any printable characters may be used in a label. Only the first 32 characters of *labelname* are significant.
- Examples:**
- ```
if online then jump start
alarm 7
end

label START
wait for "Enter name:"
reply UserID
```
- The script jumps to the START label if ONLINE is true, and WAITs for a string. If ONLINE is not true, the JUMP is ignored, an alarm sounds, and the script ends.*
- See:** JUMP



## ONLINE

**Purpose:** Returns a true/false value indicating a successful connection.

**Format:** X = ONLINE

**Notes:** ONLINE is a true/false switch indicating whether the CASL program is online to another computer either via modem or directly connected (i.e., with Local ON). Some CASL commands and functions (REPLY, for example) are inappropriate unless you are online when they are executed.

ONLINE can be used to control program flow, preventing execution of "online only" commands in dual-purpose scripts, or performing other actions if the host computer hangs up the telephone.

**Examples:**

```
while online
 watch for
 "name" : reply UserID
 "password" : reply Password
 "welcome" : end
 endwatch
wend
```

*This is a simple login script. While ONLINE is true, the script watches for name, password, and welcome. The script ends when welcome is received.*

*if not online then ...*

*Executes the command(s) following THEN if ONLINE is not true.*

## REPLY & REPLY LINE

**Purpose:** Sends a string of text to the host.

**Format:** `REPLY [<string>] [,<string>] [:]`  
`REPLY LINE [<string>] [,<string>] [:]`

**Notes:** *string* is a string expression containing the text to be transmitted to the host computer.

REPLY is used to send a string of text directly to the communications device as fast as possible. The specified string of text is followed by LineDelim (defined on the Upload Setup ([Alt-U](#)) screen), usually a ^M. To suppress the sending of LineDelim after a string, terminate the command with a semicolon (see the example below).

If REPLY is used without an argument (i.e., a string), REPLY just sends LineDelim.

REPLY LINE sends the line of text, as REPLY does, but uses the parameters set in the [Alt-U](#) Upload Setup panel to pace its replies.

Both REPLY and REPLY LINE send the LineDelim character string (normally a carriage return, but you can change that in the [Alt-U](#) screen) after sending *string*.

**NOTE:** To send the contents of a user-defined function key, use the REPLY FKEY command (an example is provided below).

**Limits:** Only applicable when online.

**Examples:** `REPLY "HELLO"`

*Replies HELLO.*

```
wait for "Login :"
REPLY UserID
```

*Waits for Login: and replies with the contents of the Dialing Directory entry's UserID variable.*

```
wait for "ID"
reply line UserID + " " + Password
```

*Waits for ID and replies with the contents of the Dialing Directory entry's UserID and Password variables separated by a space.*

```
wait 3 seconds
reply userid;
```

*Waits three seconds and sends contents of the Dialing Directory entry's UserID variable. The semicolon suppresses the sending of LineDelim.*

```
reply fkey(10)
```

*Sends the contents of function key 10 (F10).*

## SEENDBREAK

Purpose: Sends a break signal to the host.

Format: SEENDBREAK

Notes: This command sends a break signal to the host. Break signals are often used in modem communications as a "cancel" signal. Using SEENDBREAK in a script is the equivalent of pressing **Alt-B**.

The length of the break signal sent is controlled by the Breaklength variable setting in the Device Setup panel (**Alt-D**). Additional information on Breaklength can be found in Appendix C.

Examples: SEENDBREAK

## TIMEOUT

Purpose: Returns a true/false value indicating the status of the most recent WAIT command or WATCH statement.

Notes: TIMEOUT is a true/false switch indicating whether the last WAIT or WATCH statement timed out. TIMEOUT is true if the statement exceeded the time specification before encountering the string for which it was WAITing or WATCHing.

Examples: 

```
while timeout <> 0
 reply
 wait 1 second for "Login:"
wend
```

*WAIT and TIMEOUT are used here as part of the process of logging into a host. The host, in this case, wants a number of carriage returns (^M) so it can check your baud rate, parity, and stop bits. The ^M should be sent about once per second, and it takes an arbitrary number of ^M characters to wake up the host. When it is ready for your login, the host sends the phrase "Login:".*

```
if TIMEOUT then alarm 7
```

See: WAIT, WATCH, WHILE

## WAIT

**Purpose:** Waits for one or several strings of text from the host, and takes a single action when a string match occurs.

**Format:** WAIT [*<time>*] FOR  
[[CASE | SPACE] *<string>* [,*<string>*]]  
[QUIET *<time>*]  
[COUNT *<integer>*]

**Notes:** The WAIT command waits the amount of time specified in *time* for one of the strings specified above. *time* is optional. If used, it is a time expression (either singular or plural) in the form:

x hours  
x minutes  
x seconds  
x ticks (a tick is 1/10 second)

The WAIT options are as follows:

**CASE** Indicates that the string to be matched is case sensitive. Unless this option is specified, CROSSTALK Communicator ignores case.

**SPACE** Indicates that *string* may contain "white space" characters (spaces, tabs, etc.). CROSSTALK Communicator ignores "white space" unless this option is specified.

**NOTE:** CASE and SPACE may be used together to ensure an exact match.

**QUIET** Indicates to wait until the communications line is quiet for the amount of time specified in *time*.

**COUNT** Indicates to wait for the number of characters specified in *integer*.

To be effective, a WAIT command requires waiting for a specific, unique string of text to be received. For example:

```
wait for "Enter your first name: "
```

WAIT does not require a complete phrase, however. If just "name:" is unique at the time the script executes the WAIT statement, the above could be shortened to the following:

```
wait for "name:"
```

WAIT can look for more than one of several things to occur, and takes one action if any of the specified strings is received. For example, if the objective is to send a carriage return when either "more" or "press enter" is received, the script line would look like this:

```
wait for "more", "press enter"
```

WAIT is case and space insensitive by default; it considers upper and lower case letters to be equivalent, and it ignores spaces. If your application requires an exact string match, use the CASE and/or SPACE options.

Any or all of the wait options may be combined into one command. See the "Examples" section below for an example of this.

If one of the time options (minutes, seconds, or ticks) is specified, and the specified string is not matched, the TIMEOUT function returns TRUE, indicating that the desired string was not received in the time specified. The default time is forever.

The keyboard remains active while a WAIT is in effect. You may interact with the host while a script "waits."

**Limits:** Only the following construct is usable offline:

```
WAIT <time>
```

To use any other option, you must be online.

**Examples:** WAIT FOR "Login:" : REPLY USERID

```
wait 1 second for "Hello"
```

```
WAIT for "A", "B", "C"
```

```
wait for count 10
```

```
wait quiet 10 seconds
```

```
WAIT CASE "UserID:"
```

```
wait CASE SPACE "Log in:"
```

**See:** TIMEOUT, WATCH & ENDWATCH

## WATCH & ENDWATCH

**Purpose:** Waits for one or several strings of text from the host, and takes different actions based on the string match that occurred.

**Format:** WATCH [<time>] FOR  
[[CASE | SPACE] <string> [,<string>] : [<statement group>]]  
[QUIET <time>] : [<statement group>]  
[COUNT <integer>] : [<statement group>]  
ENDWATCH

**Notes:** The WATCH statement pauses script execution while waiting for the length of time specified in *time* for one of the conditions specified. Time is optional. If not given, WATCH waits "forever." *time* is a time expression (either singular or plural) in the form:

x hour  
x minute  
x second  
x tick (a tick is 1/10 second)

WATCH performs the statements in *statement group* when the corresponding condition is met. The program logic then continues with the statement following ENDWATCH. *statement group* is optional.

When a WATCH statement is encountered, the script is suspended until one of the specified strings or conditions is matched, executes the corresponding statement group (if present) and continues.

*string* is an expression to watch for, and there may be multiple strings.

**CASE** Indicates the case of the string must be matched exactly. WATCH is case insensitive unless the CASE keyword is used.

**SPACE** Indicates the string may not contain extra space characters. WATCH is not sensitive to embedded "white space" characters unless the SPACE keyword is used.

**NOTE:** CASE and SPACE may be used together to ensure an exact match.

**QUIET** Specifies the communications line must remain "quiet" (i.e., no characters received) for the amount of time specified. See the WAIT command for time specifications.

**COUNT** Specifies to watch for the number of characters given in *integer*.

WATCH is not a looping construct. When a WATCHed for event occurs, the WATCH is terminated, and the *statement group* defined by the event is executed. If it is desired to repeat the WATCH/ENDWATCH statements, they may be enclosed in a WHILE/WEND loop. For example:

```
while online
 watch for
 "<return>" : wait 1 second : reply
 "$" : end
 endwatch
wend
```

This example is taken from a simple script used to automate "reading" through electronic mail on a host. The loop provided by the WHILE & WEND is needed because the <return> prompt will appear multiple times during the reading process. A prompt to press return appears after each message, and the script uses REPLY to send a carriage return character 1 second after the prompt appears. If the \$ symbol appears, there is no more mail to read, and the script ends. Turning CAPTURE on before running the script, and OFF after, will save the text received from the host in a file which can be read later (presumably while off-line).

**Limits:** The WATCH statement may be used only when online.

**Examples:**

```
watch 10 seconds for
 case space "User ID:" : reply UserID
 "Login:" : reply password
 "system down" : goto cant_log_in
 quiet 10 minutes : goto system_is_dead
endwatch
```

*A script used to log into a hypothetical host which may send any one of several messages.*

**See:** WAIT, WHILE & WEND

## WHILE & WEND

**Purpose:** Performs a statement or group of statements as long as a given condition is true.

**Format:** WHILE *expression*  
(statements)

WEND

**Notes:** WHILE allows you to perform one or more statements as long as a certain expression is TRUE. The WHILE...WEND loop is not executed at all if the expression is FALSE the first time it is evaluated.

*expression* is any logical expression and it must be capable of being evaluated as either TRUE or FALSE.

WEND indicates the end of the conditional statements.

When using any looping construct, be sure the terminating condition (i.e., expression) can eventually become TRUE (or FALSE, if it started out TRUE), or that there is some other exit from the loop.

**Examples:**

```
while online
 watch for
 "User ID" : reply UserID
 "Password" : reply password
 "electronic mail" : reply "go mail" : end
 "enter choice" : end
wend
```

*Here a WATCH & ENDWATCH construct is used within a WHILE & WEND loop so that the WATCH is performed repeatedly. The loop will continue until one of the two WATCH choices which contain an END command is executed.*



## 7 Conveniences

This chapter introduces you to a group of functions that do not relate directly to communications, but make using CROSSTALK Communicator more convenient. The early sections describe various functions available from the menu system. The final sections cover special scripts included with the program.

### 7.1 Changing the Dialing Directory Display

By default, the Dialing Directory lists entries by name; each entry shows the description, phone number, number of calls made with the entry, and the date and time on which you last called.

You can have the Dialing Directory display other helpful information about each entry, such as the startup script, connection speed, and modules used. To rotate through the display options, press the keys **1** through **8** on the top row of your keyboard (not the numeric keypad) while the Dialing Directory is displayed.

Once you have selected the option that displays the information you want, press **<** or **>** to select the item used to sort entries. The **>** character appears at the beginning of the column heading currently used for sorting. Alternatively, you may use the BookSort and BookMode variables from the System Setup screen (**Alt-Y**) to change the display style. For more information, press **Alt-H** while the cursor is on the desired variable.

### 7.2 Using the Text Editor

CROSSTALK Communicator includes a built-in text Editor. You can use the Editor while off line to create text files for uploads (as well as using it on line to create electronic mail messages, as instructed in Chapter 5).

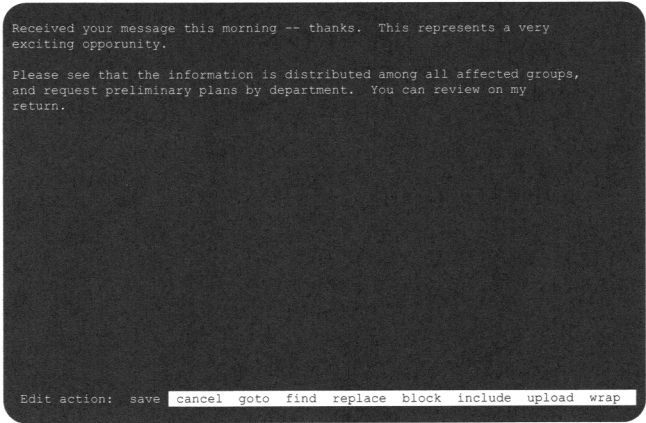
To start the Editor while off line, display the Dialing Directory and press **Alt-E**. You're prompted for a file name; enter a new file name to create a new file, or enter the name of an existing text file to edit (press **PgUp** first if you need to display a directory).

When the Editor starts up, you'll see the first screen of the file. The status line shows the file name and the line and column number in which the cursor is positioned, and indicates you are in insert mode (it also reminds you that **Alt-A** displays the Editor Menu).

To edit the file, use the cursor keys to move to the point where you want to type, and begin entering text. When you are in insert mode ("Ins" appears on the status line), each character you type is inserted into the file, with all characters to the right of the cursor shifting to make room. When you are in overtype mode ("Ins" does not appear on the status line), each character you type replaces the character at the cursor position. To switch between insert and overtype modes, press **Ins**.

## Editing Options

As you continue to edit, you'll find the options on the Editor Menu handy. Press **Alt-A** to display the Editor Menu, as shown below.



The options on the Editor Menu perform the following functions:

| Option: | Purpose:                                                                                                                                                                                |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAVE    | Saves the file to disk (if you are editing an existing file and have the Backups preference set to ON [see Section 7.3], the old version is renamed as <i>filename.BAK</i> )            |
| CANCEL  | Exits the Editor and discards the changes                                                                                                                                               |
| GOTO    | Moves the cursor to a specific line in the file                                                                                                                                         |
| FIND    | Searches the file for the characters you specify                                                                                                                                        |
| REPLACE | Searches the file like FIND, and also replaces the found characters with the characters you specify                                                                                     |
| BLOCK   | Displays the Block Menu, which allows you to mark a block of text and move, copy, delete, or write the block to a file                                                                  |
| INCLUDE | Inserts the file you specify at the cursor location                                                                                                                                     |
| UPLOAD  | Sends the file to the host system                                                                                                                                                       |
| WRAP    | Turns autowrap ON (the cursor moves to the next line when you reach the specified wrap column) or OFF (when set to 0, the default, you must press <b>Enter</b> at the end of each line) |

## Find and Replace

While a file is loaded into the Editor, you can search through the file for a word or phrase, and optionally replace it with another string of characters.

If you simply want to locate a word or phrase, select **FIND** from the Editor Menu; if you want to locate a word or phrase and replace it with another word or phrase, select **REPLACE**. In either case, fill out the screen that is displayed and press **Ctrl-Enter**. The Editor immediately searches the file, starting from the cursor location and in the direction you specified, and displays the first instance it locates.

If you want to repeat a Find operation, use the following keys:

| Key:            | Purpose:                               |
|-----------------|----------------------------------------|
| <b>Ctrl-N</b>   | Repeats the last find (same direction) |
| Keypad <b>-</b> | Repeats the last find (backward)       |
| Keypad <b>+</b> | Repeats the last find (forward)        |
| Keypad <b>*</b> | Displays the Find Menu again           |

**NOTE:** The **[\*]** key on the numeric keypad offers a shortcut to the Find menu, bypassing the Editor Menu.

## Working with Blocks of Text

When you are editing a file, you will often want to perform operations on a block of text, such as copying, moving, or deleting. Selecting Block from the Editor Menu displays the Block Menu, from which you can select block operations.

A block is any continuous group of lines in a file. To designate a block, move the cursor to the first line you want to include and press **[Ctrl-T]**. Then, move the cursor to one line below the last line to include and press **[Ctrl-B]**. After marking the block, display the Block Menu by selecting Block from the Editor Menu (**[Alt-A]**).

The Block Menu offers selections for the following block operations:

| Option:  | Purpose:                                                                                                                                                                                                                                                                                            |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COPY     | Places a copy of the marked block at the current cursor location, while retaining the block in its original location (the original block remains marked)                                                                                                                                            |
| MOVE     | Removes the marked block from its original location, and places it at the current cursor location (the block remains marked)                                                                                                                                                                        |
| DELETE   | Removes the marked block                                                                                                                                                                                                                                                                            |
| WRITE    | Writes the marked block to a text file -- you are prompted for the name of the file; if it is an existing file, you're asked if you want to append it to existing text in the file or overwrite (remove) the existing file contents<br>To <i>print</i> the marked block, enter PRN as the file name |
| RELEASE  | Unmarks the currently marked block                                                                                                                                                                                                                                                                  |
| UPLOAD   | Uploads the marked block to the host system (see Chapter 5 for information on uploading)                                                                                                                                                                                                            |
| PREVIOUS | Returns you to the Editor Menu                                                                                                                                                                                                                                                                      |

**NOTE:** You also have the option of manipulating a block of text with the scrapbook, a special buffer included in the Editor. After marking the block, press **[Ctrl-X]** to cut it to the clipboard (and remove it from the Editor), or **[Ctrl-C]** to copy it to clipboard (and leave it in the Editor). Pressing **[Ctrl-V]** will paste this block into the file at the point of the cursor.

## Editing Keys

The Editor includes a number of editing keys that you will find very helpful if you use the Editor often. To display a map of editing keys, press **(Alt-H)** while in the Editor.

The first screen shows the editing functions that you can invoke with Ctrl-key combinations. To view editing functions invoked with keypad keys, press **(PgDn)**.

## Editor Setup Options

When you first start up the Editor, the prompt for the file name indicates that you can press **(Alt-E)** to change the Editor setup. Press **(Alt-E)** at that point if you wish to set the following options:

- *Ewrap* lets you determine the column at which typing automatically advances to the next line. Setting this to 0 turns wrap off, and you must press **(Enter)** at the end of each line.
- *Emode* sets the Editor to insert or overtype mode. When set to "insert" (the default), each character you type is inserted into the file, with all characters to the right of the cursor shifting to make room. Switch to "overtyping" if you want each character you type to replace any character at the cursor position.

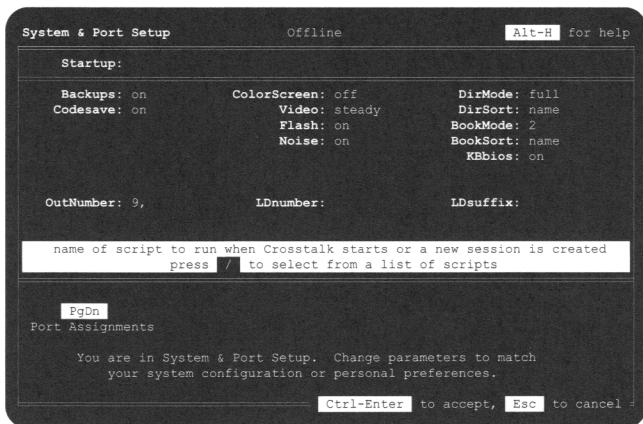
## Using Your Own Text Editor

If you prefer, you can use your own text editor instead of the built-in Editor. See "Running Other Programs during CROSSTALK Communications" later in this chapter.

**NOTE:** When you are using the built-in Editor, you can continue communications. This is not the case when you use your own editor.

## 7.3 Configuring System and Port Settings **Alt-Y**

You can set several CROSSTALK Communicator variables that tailor program operation according to your system and port setup. These variables are presented in the System & Port Setup screen, which you can display by pressing **Alt-Y** from the Dialing Directory.



Note that changing these settings is never required to conduct communications or to access functions; each variable controls a convenience that you can modify as desired.

To display Help concerning the purpose of any option, use the cursor keys to highlight the option and press **Alt-H**. To change the setting of a variable, highlight it and proceed as directed on screen (press the space bar, press **/** for a selection list, or enter a value).

## Setting Up Port Assignments

The MODEM device module works with CROSSTALK Communicator's port assignments to control the serial port and modem. For nearly all users, the port assignment is set up correctly by CONFIG. If you ran CONFIG as instructed in Chapter 2 and are using a modem assigned to

any port from COM1 through COM4 (or COM 1 through COM8 for IBM PS/2), communications should proceed normally. In this case, you do not need to do anything further concerning port assignments.

If you have a modem not listed in CONFIG's modem list or non-standard ports (such as those offered by multi-port boards), you can make the necessary adjustments through the Preference Menu's Port Assignments option. This lets you specify port numbers, modem type and command strings, address, and IRQ number.

To set up port assignments, press **Alt-Y** to display the System & Port Setup screen, and press **PgDn**. This displays the Port Assignments screen, which lists any ports you've already configured. Proceed as follows:

- To reconfigure an existing port, highlight the port and press **Enter**.
- To set up a new port, press **Ins**, and enter the number of the port to configure. Highlight the modem type that most closely corresponds to yours (use Crosstalk Defaults if none apply) and press **Enter**. The Port Assignments screen is displayed again; highlight the new port and press **Enter**.

In either case, the Port Setup screen is displayed.

If you need to specify a non-standard port, enter its address and IRQ number (refer to your hardware manual for these). Note that CROSS-TALK Communicator ensures multi-port compatibility by addressing the hardware directly; do not be concerned if DOS does not support your hardware device's ports.

For Modem Type, press **/** to display a modem list. If you are using a modem that is not listed, enter a name for it. Then, refer to the modem's manual for information on the necessary command strings and enter them in the appropriate fields. Particularly important are the ModemInit, DialPrefix, DialSuffix, and HangCommand string. If you need additional information on the purpose of a command string, move the cursor to it and press **Alt-H**.

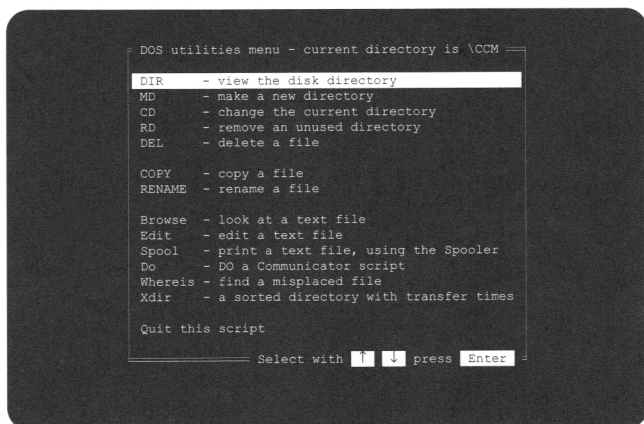
Press **Ctrl-Enter** when you are finished making adjustments to the Port Setup screen.

**NOTE:** This definition is added to the CROSSTALK Communicator modem database file XTALK.MDM. You can copy XTALK.MDM to other systems that use this modem. If you need to delete a definition from XTALK.MDM, press **Del** when the modem list is displayed.

## 7.4 File Management (DOSMENU Script)

A script named DOSMENU allows you to manage files from within the program. The DOSMENU script offers options that operate in much the same way as equivalent DOS commands, plus access to handy utilities that aid in file management.

To start up the DOSMENU script, press **Alt-M** from the Dialing Directory, and select DOSMENU. The following screen is displayed:



To select a DOSMENU option, highlight it with the cursor keys and press **Enter**. Options function as described in the following sections.

### DIR -- View the Disk Directory

The DIR option functions like the DOS DIR command, displaying a directory of disk files on screen. Selecting DIR from DOSMENU dis-



plays a prompt for the directory to view. Pressing **Enter** for the default \*.\* lists all files in the current directory; specifying a wildcard file name (e.g., \*.XTS) lists selected files.

If there are too many files to fit in the directory panel, use the cursor keys or **PgUp** and **PgDn** to move the directory display up and down in the panel.

While a directory is displayed, you can use the keypad **+** and **-** keys to change directories. To display another directory, highlight it in the directory display and press **+**; to move up one directory level, press **-**.

As indicated on the screen, you can press the keys **1** through **3** at the top of your keyboard (*not* on the numeric keypad) to rotate among options that determine what file information is displayed. Pressing **>** rotates among the options that determine how files are sorted in the display (by name, extension, date, or size).

You can also create a file list from here by highlighting each file to include in the list and pressing **Ins**. The **Del** key untags files, and **←** accepts the file list. Refer to Section 7.5 for more information on file lists.

## MD -- Make a new Subdirectory

The MD option creates a new subdirectory on your disk, and functions like the DOS MKDIR command. Selecting MD from DOSMENU produces a prompt for the name you want to assign to the new subdirectory.

## CD -- Change the Current Subdirectory

Selecting CD from DOSMENU displays a prompt for the name of a subdirectory to change to; enter the name of an existing subdirectory (e.g., \BIN), plus a disk drive if desired (e.g., B:\BIN).

## **RD -- Remove an Unused Subdirectory**

The RD option removes unwanted subdirectories from your disk. To remove a subdirectory, it must be completely empty of files or further subdirectories. Selecting RD from DOSMENU produces a prompt for the name of the subdirectory to remove.

## **DEL -- Delete a File**

The DEL option removes files from your disk. Selecting DEL from DOSMENU displays a prompt for the name of the file to delete. Enter the file name, and include a drive and directory, if necessary.

You may use wildcard file names with DEL. For example, entering **\REPORTS\\*.BAK** as the file to delete would remove from disk all files in subdirectory \REPORTS that have the extension .BAK. If you specify a wildcard file name, you're prompted to confirm each deletion.

## **COPY -- Copy a File**

The COPY option works like the DOS COPY command to make copies of files. You can copy files to another disk drive or directory if needed.

Selecting COPY from DOSMENU displays a prompt for the name of the file to be copied, plus the name of the new copy. These can include a drive and directory.

As with DEL, you can enter the name of a single file to copy, or use a wildcard file name to copy multiple files.

## **RENAME -- Rename a File**

The RENAME option lets you change the name of a file or group of files. Selecting RENAME from DOSMENU produces a prompt for the name of the file to rename, plus the new file name.

You can use wildcard file names to rename a group of files; for example, renaming **\*.XTC** to **\*.BAK** changes all .XTC file extensions to .BAK.

## Browse -- Look at a Text File

The Browse option displays a file's contents, much like the DOS TYPE command. Selecting Browse from DOSMENU produces a prompt for the name of the file to display. To browse a single file, enter the file name (e.g., **MEMO.TXT**). To browse several files in succession, use a wildcard file name (e.g., **\*.TXT**); the file(s) are displayed on the screen, one at a time.

You can also browse files in a file list by entering **&** alone, or **&** followed by a file name (if you've saved a file list to disk). Refer to Section 7.5 for details on file lists.

**NOTE:** Browse is useful mainly for text files. Browsing a binary file will display unreadable characters.

The following keys move you through a file during Browse:

| Key:      | Purpose:               |
|-----------|------------------------|
| ↑         | Moves up one line      |
| ↓         | Moves down one line    |
| PgUp      | Moves up one screen    |
| PgDn      | Moves down one screen  |
| Ctrl-PgUp | Moves to start of file |
| Ctrl-PgDn | Moves to end of file   |

Press **Esc** when you are finished browsing.

You can also press the keys in the following table for further Browse operations.

| Key:     | Purpose:                               |
|----------|----------------------------------------|
| Alt-A    | Displays the Browse Menu               |
| Keypad * | Displays the Find Menu                 |
| Ctrl-N   | Repeats the last find (same direction) |
| Keypad + | Repeats the last find (forward)        |
| Keypad - | Repeats the last find (backward)       |
| Ctrl-T   | Marks the top of a block               |
| Ctrl-B   | Marks the bottom of a block            |

Other keys available are shown by pressing **Alt-H**.

**NOTE:** For information on Browse Menu items, the Find Menu, and working with blocks of text, see "Using the Text Editor" earlier in this chapter; Browsing is essentially the same as displaying a file with the Editor, except that Browse does not allow you to modify the file.

## **Edit -- Edit a Text File**

The DOSMENU Edit option provides an alternative means of accessing the built-in Editor, which is useful for preparing electronic mail messages and other text files. Selecting Edit from DOSMENU displays a prompt for the name of the file to edit; for complete information on using the Editor, see "Using the Text Editor" earlier in this chapter.

## **Do -- DO a Crosstalk Script**

Selecting Do from DOSMENU displays a directory of Scripts. Use the cursor keys to highlight a script and press **Enter**, and the script begins running immediately. Chapter 6 provides information on creating and using your own scripts; for details on using scripts supplied with CROSSTALK Communicator, see "Using Factory-supplied Scripts" later in this chapter.

## **Whereis -- Find a Misplaced File**

The DOSMENU Whereis option provides a handy method for locating a file on disk when you no longer remember which subdirectory contains it. Selecting Whereis from DOSMENU produces a prompt for the name of the file to locate; this file name can include a wildcard or disk drive, if necessary.

## **Xdir -- Display a Directory with Transfer Times**

The final DOSMENU option, Xdir, displays a DOS-style directory of disk files that includes an estimate of each file's required transfer time (based on hardware information you entered when running CONFIG). If you are about to transfer a file and want to know how long the transfer

will take, select Xdir from DOSMENU and enter the name of the directory that contains the file. The directory listing shows each file's name, size, and date/time, along with the estimated transfer time in minutes and seconds. The transfer rate used for the estimate is shown at the top of the screen.

## 7.5 Creating and Using File Lists

There are many CROSSTALK Communicator operations in which you specify the name of a file for an operation. This includes sending files with a protocol capable of multiple file transfer, such as ZMODEM, as well as operations initiated with DOSMENU script options. When you want the operation to apply to multiple files, you can create a file list and use it as the file name.

A file list is a text file that contains the names of other files. When you enter a file list as a file name, the operation is performed on all files whose names appear in the file list.

You can create a file list from the DIR directory display option of DOSMENU (see Section 7.4). Move the cursor to the first file name you want in the file list and press **Ins**. A checkmark appears next to the file name to indicate it has been added to the file list.

Continue this process for each file name you want to add to the list. If you need to delete a file name from the list, move the cursor to it and press **Del**.

When you are finished selecting file names for the list, press **↵**. You are then shown the file list for review; press **↵** again to save the file list, which you can then refer to with the character **&** — when prompted to enter a file name, enter **&**. (An error message is displayed if a file list has not been created, or if the file name specified after the ampersand cannot be found.)

**NOTE:** Each time you create a file list, the old file list is discarded. If you want to retain a file list for future use, select the "W" option when reviewing the file list, and enter the file name under which you want the list saved. You can then refer to this file list when sending files by preceding it with **&** (e.g., **&MYL-**

IST). To append the file list to an existing file list, select the "A" option and enter the name of the file list to which the new one is to be appended.

## Sending Files with a File List

The Kermit, YMODEM, and ZMODEM protocols allow you to transfer multiple files with a single operation. One of the ways to tell CROSS-TALK Communicator which files to send is to create a file list that contains the names of other files. If you specify a file list when prompted for the name of a file to send, all files in the list are sent automatically in sequence (rather than your having to send them one at a time).

## 7.6 Running Other Programs During Communications

If you need to run another program on your PC while maintaining your connection with a host system, press **Alt-Q** and select "Quit But Don't Hang Up." Even though this exits you from the program, the connection remains intact.

When you start up CROSSTALK Communicator again, select the Dialing Directory entry used to make the original connection, and you are returned on line.

## 7.7 Using Factory-supplied Scripts **Alt-M**

CROSSTALK Communicator comes to you with a number of pre-made scripts that are ready for use in automating a variety of tasks. To display a menu of scripts, press **Alt-M** from the Dialing Directory. The Script menu includes a description of each script's purpose.

To run a script, highlight it in the Script Menu and press **Enter**. The script begins executing immediately.

The following are scripts you may find of particular interest:

- *BROWSER* offers access to CROSSTALK Communicator's file browsing function which lets you view the contents of ASCII text files (such as electronic mail messages and scripts). When

BROWSER runs, you're prompted for the name of the file to browse. See "Browse -- Look at a Text File" in Section 7.4 for more information.

- *COLORS* lets you modify the display colors of individual CROSSTALK Communicator windows, boxes, etc. After starting COLORS, follow the on-screen instructions to select from the 127 choices of color combinations for each system window.
- *CONFIG* lets you update CROSSTALK Communicator's configuration so that it matches that of your PC system. This includes selecting a display adapter type and choosing a modem type.
- *DOSMENU* offers options that operate in much the same way as equivalent DOS commands, plus access to handy utilities that aid in file management. For complete information on DOSMENU and its options, see "File Management (DOSMENU Script)" earlier in this chapter.
- *LEARN* automatically writes logon scripts for you; it records what happens when you log on, and assembles the necessary commands into a script file you can run later to automate the same task. See "Preparing and Running Logon Scripts" in Chapter 6.
- *PSPOOL* lets you send an ASCII text file to your printer. When you choose PSPOOL, you are prompted to enter the name of the file to print.





# Appendices

| Appendix   | Contents                                                                                                                                                                                                                                                 |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appendix A | Alt-Key Shortcuts provides a list of Alt-keys used in CROSSTALK Communicator.                                                                                                                                                                            |
| Appendix B | Frequently Asked Questions contains a list of commonly asked questions and their answers.                                                                                                                                                                |
| Appendix C | Connection Options Reference provides reference information on the device, terminal, protocol, and filter modules, presenting a greater level of detail on options and settings than would be appropriate for the <i>User's Guide</i> tutorial chapters. |
| Appendix D | ASCII Code Table is a list of ASCII control characters which shows the characters, their hexadecimal and decimal equivalents, and mnemonics.                                                                                                             |
| Appendix E | Modem and Cable Connections details how to connect your PC to a modem or directly to another computer. Cabling diagrams are included.                                                                                                                    |
| Appendix G | Technical Support lists telephone numbers for CROSSTALK Communicator technical support, the Crosstalk BBS, and has information about the Crosstalk Forum on CompuServe.                                                                                  |



## Appendix A Alt-Key Shortcuts

This table provides an alphabetical listing of the Alt-key combinations and their uses. Details for each are provided in previous chapters, in context of the operations from which you can access them.

| Key:         | Purpose:                                                                                       |
|--------------|------------------------------------------------------------------------------------------------|
| <b>Alt-A</b> | On-line Menu key: Gives access to functions while on line                                      |
| <b>Alt-B</b> | Sends a Break signal to the host computer                                                      |
| <b>Alt-C</b> | Starts/stops disk Capture; displays Capture Setup screen when off line                         |
| <b>Alt-D</b> | Displays the Device (MODEM) Setup screen                                                       |
| <b>Alt-E</b> | Loads the built-in text Editor                                                                 |
| <b>Alt-F</b> | Displays the Filter Setup screen                                                               |
| <b>Alt-G</b> | Grabs the current screen and writes it to the file named in Capture Setup (see <b>Alt-C</b> ). |
| <b>Alt-H</b> | Displays on-screen Help                                                                        |
| <b>Alt-J</b> | Jumps cursor to show 132-column data when screen can display only 80 columns                   |
| <b>Alt-K</b> | Allows you to view and change assignments for programmable keys                                |
| <b>Alt-L</b> | Switches between user status line and terminal status line                                     |
| <b>Alt-M</b> | Displays a menu of available scripts                                                           |
| <b>Alt-O</b> | Disconnects the communication                                                                  |
| <b>Alt-P</b> | Initiates Protocol file transfers; displays the Protocol Setup screen if off line              |
| <b>Alt-Q</b> | Quits CROSSTALK Communicator                                                                   |
| <b>Alt-R</b> | Displays data that has scrolled off the screen                                                 |
| <b>Alt-S</b> | Displays the Entry Setup screen                                                                |
| <b>Alt-T</b> | Displays the Terminal Setup screen                                                             |
| <b>Alt-U</b> | Starts Upload; displays Upload Setup screen if off line                                        |
| <b>Alt-X</b> | Switches between the status and terminal screens                                               |
| <b>Alt-Y</b> | Displays the System & Port Setup screen                                                        |



## Appendix B Frequently Asked Questions

This *User's Guide* has been specifically tailored for the new user, with full instructions on all central functions. If you are having difficulty performing any operation, you are encouraged to return to the chapter that covers the communications task in question. (For information on modem setup and cabling, refer to Appendix E.)

The following list of frequently asked questions is provided for users who need further assistance with CROSSTALK Communicator.

- Q: I think I have everything set up properly, but I don't have any place to call to test it out.
- A: You can contact our Computer Bulletin Board System as noted in Chapter 3. (This service is free except for any long distance phone charges.)
- Q: My modem isn't listed during configuration. The modem manufacturer says that the modem is "Hayes compatible." What should I do?
- A: When selecting your modem type during configuration (Chapter 2), choose either "1200 baud Hayes compatible," or "2400 baud Hayes compatible," depending on whether your modem has a maximum speed of 1200 or 2400 baud.
- Q: My modem isn't listed during configuration, and it's *not* Hayes compatible. How do I set up CROSSTALK Communicator for my modem?
- A: Install your modem as directed in its manual, and start up CROSSTALK Communicator. From the Dialing Directory, press **[Alt-Y]** to display the System & Port setup screen, then **[PgDn]** to display Port assignments. Press **[Ins]** to set up a new port, and enter the number of your modem's port assignment. Highlight **Crosstalk Defaults** in the list of modem types and press **[←]**. Highlight the new port in the Port Assignments screen and press **[←]**; this displays the Port Setup screen.

Refer to your modem's manual for information on the command strings that control your modem, and enter those command strings in the appropriate fields of the Port Assignments screen. Particularly important are the Modem Initialization string, the DialPrefix setting (which is sent to the modem immediately before the phone number), the DialSuffix setting (which is sent immediately after the phone number), and the HangCommand setting.

Q: I use the program to dial a number, and the other computer answers the phone, but I don't see any data from the other computer.

A: This problem is usually caused by having two devices set for the same serial port. If your PC has two serial ports, or a serial port and an internal modem, make sure that one of them is set for COM1, and the other for COM2. In addition, some add-on boards have jumpers that determine which of the computer's interrupt lines is assigned to COM1 and COM2. Normally, interrupt request line 4 (also called IRQ4) is used for COM1, and request line 3 (IRQ3) is used for COM2. Consult your hardware documentation for the location of these switches.

Q: My modem won't dial. I've checked the DialPrefix and Dial-Suffix settings in the Port Assignment screen and they seem to be fine.

A: Some modems do not dial if set to an "illegal" combination of data and parity. Make sure the WordFormat setting in the Device Setup (or Entry Setup) screen is at 8-N-1, 7-E-1, or 7-O-1, as required by the host system.

Q: My modem doesn't auto-dial. What should I do?

A: Set the Local variable in the Entry Setup panel to ON. You can then type directly to your modem and issue commands to it, as described in your modem's manual. Alternatively, select the "MODEM" Dialing Directory entry to talk directly to your modem. The MODEM Dialing Directory is already set up for local mode.

- Q: I need to connect with a PC in an office where I must first dial a switchboard with my phone, then get connected to the PC's extension by an operator. How can I make the connection?
- A: You must dial the operator with a phone that is connected to the same line as your modem. First, press **Alt-S** at the Dialing Directory entry you'll use for the connection, and set the LOCAL variable for the MODEM device to ON. Then, dial the number with your phone. When the operator connects you with the PC's extension, you will hear the host modem's carrier tone. Enter the modem command that makes your modem pick up the phone line (for Hayes compatibles, the command is ATD). Press **Alt-S** and switch the LOCAL variable to OFF, and continue with communications as described in this *User's Guide*.
- Q: I'm trying to connect to another computer system via telephone, then switch to the modem with ATD. I hear the other system answer, but my system never connects. After a few seconds, the other system disconnects. If I do get a connection, all I see is "garbage."
- A: There are several potential causes for this problem. Unfortunately, it's difficult for us to tell exactly where the problem lies, but here are a few suggestions:
1. Check to make sure that you are connecting at the proper speed.
  2. You may have a noisy phone line. Try the call a few times. If you're calling long distance through a discount long-distance service, you may not be able to get a clean enough connection to keep your modem happy.
  3. Make sure that your WordFormat setting is correct for the system you are calling.
  4. Your hardware may be at fault. Try using a different RS-232 cable.
- Q: When I call into a service, everything looks fine except all the data from the host is displayed on one line. What's wrong?

- A: One of several things may be wrong. You may be set to the wrong **TERMINAL** type. Check with the operator or documentation of the host system to verify the terminal type to use. If you are using the correct terminal, the host may not be sending the proper sequences needed to display the data. Check with the host operator for correct sequencing.
- Q: I am loading a 43 line video driver onto my computer. My status screen comes up in 43 line mode, but after I go on line, I only see 24 lines of screen. Why is this?
- A: The terminal you are emulating supports only 25 lines, and the host system sends out only those lines that it expects the terminal to support. The only terminals that support screens larger than 25 lines are ANSI and TTY. The maximum physical screen size supported by ANSI and TTY is 50 rows (height) by 132 columns (width).
- Q: I am calling a system and have the DEC terminal module loaded. When the first string of data comes across the screen, characters are over-written in the right-hand column. What's wrong?
- A: When using DEC emulation, the host system sometimes requires that you be in "auto-wrap" mode, but does not always send the proper sequencing. In the Terminal Setup screen (**Alt-T**), you will find a parameter called AutoWrap. Set this to ON to enter "auto-wrap" mode.



## Appendix C Connection Options Reference

This appendix provides reference information on all program modules, and contains a greater level of detail on options and settings than would be appropriate for the more tutorial chapters in this guide. This appendix assumes you are familiar with the other portions of this manual that pertain to your communication needs.

As explained in Chapter 4, a "module" is a code file that controls a specific aspect of communications. You select these modules for each Dialing Directory on the Entry Setup screen (**Alt-S**). There are four types of modules:

- The device module (MODEM), which controls your computer's modem (and serial port, if an external modem).
- The terminal modules (ANSI, DEC, IBM3101, REMOTE2, TTY and TV), which provide display and keyboard emulation to make your computer work as if it were a terminal connected to the host system.
- The protocol modules (CSERVEB, KERMIT, XMODEM, and ZMODEM), which invoke file transfer protocols for use in transferring files between your computer and the system with which you are communicating.
- The filter modules (CASE, CONTROL, DEBUG, GERMANY, SCANDNVN), which affect control or modify the display of incoming characters.

For the terminal, protocol, and filter module types, each module is suited to a specific communications task. You will have only one module per session of each type loaded at a time, and *do not* necessarily need to load a module of each type to communicate. At a minimum, communications requires the MODEM device module and a terminal module; a protocol module is needed only when you want to transfer files, and a filter module is used only when you need to filter characters. For example, if you're simply calling an information service to browse the news, you need only the MODEM device module and the DEC terminal module.

This appendix is organized by module types, and is not intended to be read sequentially; simply turn to the section that covers the module for which you need reference information.

## MODEM Device Module

The MODEM device module contains settings that control your modem, such as its speed and the character format of transmitted data. The MODEM module is also used for "direct" connections such as when you manually issue commands to the modem, or when you are directly connected to another computer.

This section provides a complete discussion of the MODEM device module. The initial pages provide an overview of the module's options which you specify in the Device Setup screen (**Alt-D**) as described in Chapter 4. The overview is followed by complete information on individual settings.

**NOTE:** For most communications, the only settings with which you need to be concerned are Port, Speed, and WordFormat. The WordFormat variable appears only on the Entry Setup screen.

# MODEM Device Module Options

The following table lists all options for the MODEM device module.

| Variable:   | Purpose:                              | Setting Options:                                                               |
|-------------|---------------------------------------|--------------------------------------------------------------------------------|
| Port        | Communications port assignment #      | 1 through 4 for PC; 1 through 8 for PS/2                                       |
| Speed       | Communication speed (bits per second) | 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200          |
| WordFormat  | Character format                      | 8-N-1, 7-E-1, 7-O-1, other                                                     |
| Flow        | Xon/Xoff                              | None, Xon/Xoff, RTS/CTS, Both                                                  |
| DataBits    | Number of data bits                   | 7 or 8                                                                         |
| Parity      | Parity check type                     | None, Odd, Even, Mark, Space                                                   |
| StopBits    | Number of stop bits                   | 1 or 2                                                                         |
| Breaklength | Break signal duration (milliseconds)  | 10, 150, 200, 250, 300, 500, 1000, 2000, 4000, or 8000                         |
| Xon         | Defines character used to start data  | Any control character (see Appendix D for a list). Default is "^Q" (ASCII 17). |
| Xoff        | Defines character used to stop data   | Any control character (see Appendix D). Default is "^S" (ASCII 19).            |
| XoffTime    | Maximum time to wait for Xon          | 0 through 65535                                                                |

# MODEM Device Module Reference

MODEM module options are described in detail on the following pages.

## Breaklength

| Used in: | Default: | Range:                                                                |
|----------|----------|-----------------------------------------------------------------------|
| MODEM    | 200      | 10, 150, 200, 250, 300, 500, 1000, 2000, 4000, or 8000 (milliseconds) |

*Breaklength* sets the duration, in milliseconds, of the Break signal that is sent when you press **Alt-B** (break signals are commonly used to interrupt the host system). The default 200 is the standard duration for a break signal. Change this setting only when required by the host system.

## DataBits

| Used in: | Default: | Range: |
|----------|----------|--------|
| MODEM    | 8        | 7, 8   |

*DataBits* determines the number of data bits in each character exchanged by the communicating computers; in conjunction with *Parity* and *Stop-Bits* (see below), *DataBits* determines the character format. (Data bits may also be set with the *WordFormat* variable.)

Your character format settings must agree with the character format used by the host system. The default setting, 8, is most common (in a character format of 8-None-1), but may be changed to 7 (for example, in a character format of 7-Even-1) if the host system requires a parity setting.

## Flow

| Used in: | Default: | Range:                        |
|----------|----------|-------------------------------|
| MODEM    | Xon/Xoff | None, Xon/Xoff, RTS/CTS, Both |

*Flow* determines the type of "flow control" used between your PC and modem (or direct-connect device). Flow control regulates the sending and receiving of information at the serial port, so that a receiving computer is not overrun with data while it is busy with another task (such as routing data to disk or printer).

NONE turns flow control off entirely. Xon/Xoff (the default) uses the traditional ^Q/^S start/stop flow control. RTS/CTS (Request to Send/Clear to Send) uses "hardware" handshaking. BOTH uses both Xon/Xoff and RTS/CTS. Use Xon/Xoff for 2400 bps and lower-speed modems, either NONE or RTS/CTS for direct connections, and BOTH with modems that operate above 2400 bps. (See the Xon/Xoff variable description for more information on flow control settings).

## Parity

| Used in: | Default: | Range:                       |
|----------|----------|------------------------------|
| MODEM    | None     | None, Odd, Even, Mark, Space |

*Parity* determines the parity error checking used in each character exchanged by the communicating computers. The default, None, is the most common (in a character format of 8-None-1); change this setting only when the host system requires parity checking. (Parity may also be set with the WordFormat variable.)

## Port

| Used in: | Default: | Range:                                   |
|----------|----------|------------------------------------------|
| MODEM    | 1        | 1 through 4 for PC; 1 through 8 for PS/2 |

*Port* identifies the communications port assignment for your serial board (if using an external modem) or internal modem. You assign this setting on your hardware, usually with a DIP switch, when you install it; the device module setting must agree with the setting on the hardware. In most cases, this setting is 1 (the default) or 2.

## Speed

| Used in: | Default: | Range:                                                                    |
|----------|----------|---------------------------------------------------------------------------|
| MODEM    | 1200     | 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bps |

*Speed* determines the connection's communication speed, which is the rate at which data is transferred between your system and the system with which you are communicating.

You should set *Speed* to the maximum speed supported by your modem. If it connects with a host modem that communicates only at lower speeds, the modems will negotiate a connection at a lower rate. You can also set this at a speed lower than your modem's maximum when you want to specifically lock out high-speed connections (as when calling a service that charges higher rates for higher speeds).

## StopBits

| Used in: | Default: | Range: |
|----------|----------|--------|
| MODEM    | 1        | 1, 2   |

*StopBits* determines the number of stop bits in each character exchanged by the communicating computers. The default, 1, is most common (in a character format of 8-None-1); change this setting only when the host system requires it. (Stop bits may also be set with the *WordFormat* variable.)

## WordFormat

| Used in: | Default: | Range:                     |
|----------|----------|----------------------------|
| MODEM    | 8-N-1    | 8-N-1, 7-E-1, 7-O-1, other |

(Not an option in the Device Setup screen; appears on the Entry Setup screen.)

*WordFormat*, when set to 8-N-1 (default), uses the character format 8 data bits, No parity, and 1 stop bit. This is by far the most common character format, and seldom needs to be changed; select a new setting only if the host system requires it. If you do change this setting, *DataBits*, *Parity*, and *StopBits* reflect the change. ("Other" is provided for combinations of those three variables not listed in the *WordFormat* variable.)



## Xoff

| Used in: | Default: | Range:   |
|----------|----------|----------|
| MODEM    | ^S       | See text |

*Xoff* works in conjunction with *Xon* to stop the transmission of data in *Xon/Xoff* flow control. (*Xon/Xoff* flow control regulates the sending and receiving of information, so that a receiving computer is not overrun with data while it is busy with such tasks as routing data to disk or printer.) When the *Xoff* character is received by either system, that system stops sending data until *Xon* is received.

*Xoff* uses the standard character ^S to stop transmission. Assign another character only if the host system requires it, or if you are exchanging information that contains ^S (note that both systems must use the same *Xoff* character).

In nearly all cases, *Xoff* requires only one character. If you use two characters, they must be separated by a forward slash (/). The first character is the one you receive from the host to stop transmitting data, and the second is the one you send to the host to stop it from transmitting data.

## XoffTime

| Used in: | Default: | Range:   |
|----------|----------|----------|
| MODEM    | 100      | See text |

*XoffTime* is the length of time in ticks (tenths of seconds) to wait for *Xon*, after receiving *Xoff*, before sending additional data. This wait time ensures that you do not get locked into a wait for *Xon* if the *Xon* character is corrupted in transmission.

Set this to 0 if you want to ensure that the host system restarts the sending of data *only* when *Xon* is received.

# Xon

| Used in: | Default: | Range:   |
|----------|----------|----------|
| MODEM    | ^Q       | See text |

*Xon* works in conjunction with *Xoff* (see above) to restart the transmission of data in *Xon/Xoff* flow control. When the *Xon* character is received by either system, that system starts sending data and continues until receiving *Xoff*.

*Xon* uses the standard character ^Q to start transmission. Assign another character only if the host system requires it, or if you are exchanging information that contains ^Q (note that both systems must use the same *Xon* character).

In nearly all cases, *Xon* requires only one character. If you use two characters, they must be separated by a forward slash (/). The first character is the one you receive from the host to start transmitting data, and the second is the one you send to the host to start it transmitting data.

## Terminal Modules

The CROSSTALK Communicator terminal modules provide display and keyboard "emulation," making your computer work as if it were the type of terminal with which the host system expects to communicate. CROSSTALK Communicator can emulate a total of 13 terminals from its 6 terminal modules.

- The ANSI terminal module emulates the ANSI color terminal subset, and is used mainly for communication with bulletin board systems (BBSs). The ANSI terminal module supports ASCII color graphics.
- The DEC module provides emulation of VT52, VT100, VT102, VT220, and VT320. The DEC terminal module provides general-purpose communications with other PCs, information services such as CompuServe, and mini or mainframe computers. The VT102 model is the default selection and will work in most cases.
- The IBM3101 module emulates the IBM 3101 terminal in both character and block modes. The IBM 3101 terminal module is generally only used when communicating with an IBM host such as a mini or mainframe computer.
- The REMOTE2 module allows you to communicate with Remote<sup>2</sup>, our remote PC control program. The REMOTE2 terminal module gives you complete access to a another PC running Remote<sup>2</sup> Host and lets you operate it as if you were sitting right in front of it.
- The TTY module provides basic terminal emulation and is used with host systems which perform no screen control functions, when communicating from one PC to another using CROSSTALK Communicator, or when directly issuing commands to a modem.
- The TV module provides emulation of Televideo terminal models 912, 920, 925, and 950. Televideo terminals are used by a wide variety of host systems. The 950 model is the default selection and will work in most cases.

**NOTE:** If you are using a video board that supports a terminal display greater than 25 rows by 80 columns (see your video board manual for details on setting the mode), you can use that feature with the ANSI and DEC terminal modules. The maximum window size for the ANSI terminals is 50 rows by 132 columns; the DEC terminal's maximum window size is 24 rows by 132 columns.

This section provides a complete discussion of the ANSI, DEC, IBM3101, REMOTE2, TTY, and TV terminal modules. The initial pages provide an overview of each module's options (which you specify in the Terminal Setup screen, as described in Chapter 4), followed by complete information on individual settings. Also included are keyboard maps that show how the terminal modules emulate special terminal keys.

**NOTE:** Terminals typically feature option switches for customization of terminal features. Wherever possible, CROSSTALK Communicator simulates those options with the options described in this section. Terminal options are in all cases set to the defaults of an actual terminal. While a large number of options are provided to ensure complete emulation capabilities, you do not need to be concerned with all possible settings. The default values allow communications to continue normally with most host systems; in general, you change from the default settings only if the host has been configured to require specific settings of its terminals, or if an option suits your personal preference.

## ANSI Terminal Module

The following table lists all options for the ANSI terminal module. Note that while ANSI emulation is intended for PCs that include a color monitor, a color monitor is not required for its use.

| Variable:   | Purpose:                                                                                            | Values:          |
|-------------|-----------------------------------------------------------------------------------------------------|------------------|
| MarginBell  | Sounds bell at column 72                                                                            | On, Off          |
| SwapDel     | Swaps Delete and Backspace keys                                                                     | On, Off          |
| AutoWrap    | Wrap to next line at edge of screen                                                                 | On, Off          |
| CharSet     | US/UK character set selection                                                                       | US, UK           |
| FormFeed    | Print form feed                                                                                     | On, Off          |
| NewLine     |  sends CR or CR/LF | On, Off          |
| Columns     | 80 or 132 column operation                                                                          | 80, 132          |
| PrintExtent | Print extent mode                                                                                   | Region, Full     |
| CurShape    | Cursor shape                                                                                        | Underline, Block |
| BBS         | When calling a bulletin board system                                                                | On, Off          |
| BackSpace   | Destructive Backspace                                                                               | On, Off          |

Setting options for the ANSI terminal module function as described later in this section.

## DEC Terminal Module

The DEC terminal module provides emulation of VT52, VT100, VT102, VT220, and VT320. The table below lists all options in the DEC terminal module.

| Variable:   | Purpose:                                                     | Values:                          |
|-------------|--------------------------------------------------------------|----------------------------------|
| Model       | Selects emulation mode                                       | VT52, VT100, VT102, VT220, VT320 |
| MarginBell  | Sounds bell at column 72                                     | On, Off                          |
| SwapDel     | Swaps Delete and Backspace keys                              | On, Off                          |
| AutoWrap    | Wrap to next line at edge of screen                          | On, Off                          |
| CharSet     | US/UK character set selection                                | US, UK                           |
| FormFeed    | Controls form feed characters for printer                    | On, Off                          |
| NewLine     | Determines whether line feeds are sent with carriage returns | On, Off                          |
| EightBit    | Uses 7 or 8 bit sequences (220 and 320)                      | On, Off                          |
| Columns     | 80 or 132 column operation                                   | 80, 132                          |
| PrintExtent | Printer extent mode                                          | Region, Full                     |
| LockFKey    | Protects function keys                                       | Unlock, Lock                     |
| CurShape    | Cursor shape                                                 | Underline, Block                 |

**NOTE:** VT220 and VT320 emulations do not support soft downloadable character sets.

For complete information on individual settings, see "Terminal Module Reference" at the end of this appendix.

# IBM3101 (Model 10 and 20) Terminal Module

The table below lists all options in the IBM3101 terminal module.

## IBM3101 Terminal Module Options Quick Reference

| Variable: | Purpose:                                                   | Values:                    |
|-----------|------------------------------------------------------------|----------------------------|
| XmitMode  | Block or character transmission                            | Char, Block                |
| AutoWrap  | Wrap to next line past column 80                           | On, Off                    |
| SwapDel   | Swaps Delete and Backspace keys                            | On, Off                    |
| LfAuto    | Add line feed upon received CR                             | On, Off                    |
| SendKey   | Send key sends line or page                                | Page, Line                 |
| NullSupp  | Suppression of null characters                             | On, Off                    |
| NewLine   | <input type="button" value="Enter"/> key sends CR or CR/LF | CR, CR_LF                  |
| TermChar  | Terminate char. For block mode                             | CR, DC3, EOT, ETX          |
| Scrolling | Scroll at 24th line                                        | Enabled, Disabled          |
| SendMode  | What data to send                                          | All, Unprotected, Modified |

For complete information on individual settings, see "Terminal Module Reference" at the end of this appendix.

## REMOTE2 Terminal Module

The REMOTE2 terminal module is actually a combination terminal and protocol module. When it is loaded as the terminal module, REMOTE2 is automatically loaded as the name for the protocol module. As a protocol, there is never any need to adjust any variables.

The REMOTE2 terminal module is dedicated to calling into Remote<sup>2</sup> Host systems, and cannot be used for any other purpose.

**NOTE:** For AutoLogon to work when you call a Remote<sup>2</sup> Host system, you must enter your User ID and password in the CROSSTALK Communicator "UserID" and "Password" fields.

You can create a Dialing Directory entry that calls a Remote<sup>2</sup> Host by selecting EASYCALL from the Dialing Directory. Select "Remote<sup>2</sup> Host or R2LAN system" and answer the questions presented.

The following table lists all options for the REMOTE2 terminal module.

### REMOTE2 Terminal Module Quick Reference

| Variable:  | Purpose:                      | Settings:    |
|------------|-------------------------------|--------------|
| AutoLogon  | Automatic login to R2HOST     | On, Off      |
| CBnumber   | Number for R2HOST call back   | Phone number |
| ErrorCheck | Performs error check          | On, Off      |
| R2screen   | Determines screen update mode | Fast, Normal |

For complete information on individual settings, see "Terminal Module Reference" at the end of this appendix.

## REMOTE2 Terminal Module Limitations

The REMOTE2 terminal module supports all Remote<sup>2</sup> Call functions except for Graphics mode applications, **Alt**-letter keys, **Shift-PrtSc**, and the Remote<sup>2</sup> advanced keyboard option.



If the REMOTE<sup>2</sup> display is put in graphics mode, CROSSTALK Communicator displays an error message indicating that it cannot display graphics. This error message will not be removed until the program that is running under Remote<sup>2</sup> Host is switched to text mode.

CROSSTALK Communicator intercepts **Alt**-letter keys, and does not send them to the Remote<sup>2</sup> Host system. To send an **Alt** key to the Remote<sup>2</sup> Host system, you must press **Ctrl-** followed by the letter. For instance, to send **Alt-A**, press **Ctrl-**, then type **A**. (Setting "Altnums" to "terminal" allows **Alt**-number keys to be sent to the host without the use of **Ctrl-**.)

**Shift-PrtSc** also cannot be sent to the Remote<sup>2</sup> Host system. It does, however, function normally on your own PC.

The Remote<sup>2</sup> advanced keyboard option is not supported by CROSSTALK Communicator. Therefore, you cannot run programs such as DCA's E78 Plus, which requires Remote<sup>2</sup> Call's advanced keyboard option.

# TTY Terminal Module

The TTY terminal module provides basic terminal emulation for use with host systems which perform no screen or cursor control function. TTY is useful, for example, when communicating PC to PC, when directly issuing commands to a modem.

The table below lists all options in the TTY terminal module.

TTY Terminal Module Options Quick Reference

| Variable: | Purpose:                        | Values: |
|-----------|---------------------------------|---------|
| SwapDel   | Swaps Delete and Backspace keys | On, Off |
| LfAuto    | Add line feed to received CR    | On, Off |
| TabWidth  | Set tabs every N columns        | number  |
| BackSpace | Destructive Backspace           | On, Off |

For complete information on individual settings, see "Terminal Module Reference" at the end of this appendix.

## TV Terminal Module

The TV terminal module provides emulation of TeleVideo 912, 920, 925 and 950 terminals and the Lear-Siegler ADM-3a terminal. The table below lists all options in the TV terminal module.

### TV Terminal Module Options Quick Reference

| Variable: | Purpose:                        | Values:                |
|-----------|---------------------------------|------------------------|
| Model     | Emulation type                  | 912, 920, 925, 950     |
| EditMode  | Editing mode                    | Normal, Block, Local   |
| SwapDel   | Swaps Delete and Backspace keys | On, Off                |
| LfAuto    | Add line feed upon received CR  | On, Off                |
| InsMode   | Overtyping/insert mode          | On, Off                |
| KeyEdit   | Local edit On                   | On, Off                |
| Attribute | Page or line fill on attribute  | Line, Page             |
| CurShape  | Cursor shape                    | None, Underline, Block |
| RomLevel  | Firmware compatibility          | 1.0, 2.0               |

For complete information on individual settings, see "Terminal Module Reference" at the end of this appendix.

**NOTE:** To emulate a Lear-Siegler ADM-3a terminal, use terminal type TV (TeleVideo) and set the Emulate variable to 912. The ADM-3a and TeleVideo 912 use identical escape sequences.

## Terminal Module Reference

Setting options for the ANSI and DEC terminal modules function as described in the following pages.

**NOTE:** Terminal options are in all cases set to the defaults of an actual terminal. The default values allow communications to continue normally with most host systems; in general, you change from the default settings only if the host system has been configured to require specific settings of its terminals, or if an option suits your personal preference.

### Attribute

| Used in: | Default: | Range:     |
|----------|----------|------------|
| TV       | Line     | Line, Page |

*Attribute* determines whether TeleVideo fills an attribute, such as inverse, to the end of the line or the end of the page. Change from Line (default) to Page only if required by the host system.

### AutoLogon

| Used in: | Default: | Range:  |
|----------|----------|---------|
| REMOTE2  | On       | On, Off |

*AutoLogon*, when ON (default), instructs CROSSTALK Communicator to "wake up" the Remote<sup>2</sup> Host system and automatically send the strings you entered for UserID and Password, as soon as the connection is established. Change this to OFF only if you need to leave your system in terminal mode to log in to a PBX or network before logging in to Remote<sup>2</sup> Host.

## AutoWrap

| Used in:            | Default: | Range:  |
|---------------------|----------|---------|
| ANSI, DEC, IBM 3101 | On       | On, Off |

*AutoWrap* determines the action taken when the cursor reaches the last column of the screen. When *AutoWrap* is ON (default), a carriage return and line feed are added after the character at the last column, and the cursor advances to the next line of the screen. If *AutoWrap* is OFF, characters overwrite at the last column (but are still sent sequentially to the host system)

Change this setting to OFF if you get unexpected double spacing while typing.

## BackSpace

| Used in:  | Default: | Range:  |
|-----------|----------|---------|
| ANSI, TTY | Off      | On, Off |

*BackSpace* determines what happens when you press the backspace key. When set to OFF (default, non-destructive backspace), the backspace key moves the cursor back one space, functioning the same as the left-arrow cursor key. When set to ON (destructive backspace), pressing the backspace key moves the cursor back one space and deletes the character at that position. Set this according to your preference.

## BBS

| Used in: | Default: | Range:  |
|----------|----------|---------|
| ANSI     | Off      | On, Off |

*BBS* offers specialized support for communications with bulletin board systems. If set to OFF (default), the terminal status line is displayed as usual. If you change BBS to ON, the terminal status line disappears (offering an additional screen line for the display of data), and pressing **Ctrl-L** takes on the function of clearing the screen and homing the cursor.

## CBnumber

| Used in: | Default: | Range:       |
|----------|----------|--------------|
| REMOTE2  | None     | Phone number |

*CBnumber* specifies your phone number if the Remote<sup>2</sup> Host system is to call back. (To use this feature, the remote system's Phone Number parameter must be set to "?".)

## CharSet

| Used in:  | Default: | Range: |
|-----------|----------|--------|
| ANSI, DEC | US       | US, UK |

*CharSet* determines whether your keyboard supports the US or UK character set. Changing this to UK causes the English pound symbol to be sent when you press **#**, and enables display of the English pound symbol on your screen.

## Columns

| Used in:  | Default: | Range:  |
|-----------|----------|---------|
| ANSI, DEC | 80       | 80, 132 |

*Columns* determines whether your screen displays text in an 80-column format or a 132-column format.

If your video card and monitor support 132-column display, setting the Columns option to 132 allows you to display a full screen of 132 columns x 50 rows (24 rows for DEC).

If your video card and monitor do not support 132-column display, setting Columns to 132 displays only 80 columns at a time. In this case, press **Alt-J** (Jump) to move the cursor within a window and view the data that won't fit on the screen. When finished viewing the data that extends past the edge of the screen, press **Home** to move back to column 1.

## CurShape

| Used in:  | Default:  | Range:                 |
|-----------|-----------|------------------------|
| ANSI, DEC | Underline | Underline, Block       |
| TV        |           | None, Underline, Block |

*CurShape* determines whether your cursor appears as an underline or a block. This setting is strictly a matter of preference, and has no effect on communications.

## EditMode

| Used in: | Default: | Range:               |
|----------|----------|----------------------|
| TV       | Normal   | Block, Local, Normal |

*EditMode* determines whether you edit in block, normal, or local mode. When set to Normal (default), each character is sent to the host system and echoed when typed. Changing to Block causes characters to be echoed to the screen, but nothing is sent until you press the Send key. Local is provided for developers to use in testing; characters are echoed to the screen, but nothing is sent.

## EightBit

| Used in: | Default: | Range:  |
|----------|----------|---------|
| DEC      | Off      | On, Off |

*EightBit* (VT220 and VT320 emulation) determines whether your terminal uses 8-bit (ON) or 7-bit (OFF, default) sequences for transmitted characters. Change this to ON only if required by the host system.

## FormFeed

| Used in:  | Default: | Range:  |
|-----------|----------|---------|
| ANSI, DEC | Off      | On, Off |

*FormFeed* determines whether a form feed is added to each printscreen sequence received from the host system. When this is OFF (default), screens print continuously. Change this to ON if you want to print each screen on a separate page.



## InsMode

| Used in: | Default: | Range:  |
|----------|----------|---------|
| TV       | Off      | On, Off |

*InsMode* determines whether you type in insert mode (in which existing characters shift to the right to make room for new characters), or overwrite mode (in which the character under the cursor is deleted when you type a new character). When set to OFF (default), you are in overwrite mode.

## KeyEdit

| Used in: | Default: | Range:  |
|----------|----------|---------|
| TV       | Off      | On, Off |

*KeyEdit* determines whether editing keys (such as backspace) are echoed from the host system. When set to OFF (default), CROSSTALK Communicator expects an echo for each editing key. Setting this to ON causes editing keys to be sent, but not echoed. Change this to ON only if the host system supports it.

## LfAuto

| Used in:            | Default: | Range:  |
|---------------------|----------|---------|
| IBM3101,<br>TTY, TV | Off      | On, Off |

*LfAuto* determines what happens when you receive a carriage return from the host system. When *LfAuto* is OFF (default), CROSSTALK Communicator assumes the host system is sending a line feed character with each carriage return, as is generally the case. If *LfAuto* is ON, a line feed character is automatically added to each carriage return.

Change this setting to ON only if all data you receive from the host system is written to the same, single line with continuous overwriting (before changing, check to see that you are using the correct terminal module).

## LockFKey

| Used in: | Default: | Range:       |
|----------|----------|--------------|
| DEC      | Unlock   | Unlock, Lock |

*LockFKey* determines whether the host system can reprogram your keyboard's function keys. Unlock (default) allows the function keys to be reprogrammed by the host system. Change this to Lock if you do not want to allow the host system to reassign function keys.

## MarginBell

| Used in:  | Default: | Range:  |
|-----------|----------|---------|
| ANSI, DEC | Off      | On, Off |

*MarginBell* determines whether a bell sounds when the cursor reaches column 72. Set this to ON if you are communicating with a host system that requires you to manually enter a carriage return at the end of each line, to serve as a warning to press .

## Model

| Used in: | Default: | Range:                           |
|----------|----------|----------------------------------|
| DEC      | VT100    | VT52, VT100, VT102, VT220, VT320 |
| TV       | 950      | 912, 920, 925, 950               |

*Model* determines which of the supported emulation modes is used. The defaults are adequate in most cases; change *Model* only if you know the host system supports a different terminal type. (Note that the DEC VT220 and VT320 emulations do not support soft downloadable character sets.)

## NewLine

| Used in:  | Default: | Range:    |
|-----------|----------|-----------|
| ANSI, DEC | Off      | On, Off   |
| IBM3101   | Off      | CF, CR_LF |

*NewLine* determines what happens when you press **Enter**. When this is OFF (default), pressing **Enter** sends only a carriage return character to the host system. When it is ON, pressing **Enter** sends a line feed character along with the carriage return.

You should leave *NewLine* set to OFF unless the host system operator informs you that each line you send overwrites the previous line.

## NullSupp

| Used in: | Default: | Range:  |
|----------|----------|---------|
| IBM3101  | Off      | On, Off |

*NullSupp*, which affects IBM3101 block mode, turns the suppression of null characters on or off. When set to OFF (default), your system sends null characters. Change this to ON only if the host system requires the suppression of nulls.

## PrintExtent

| Used in:  | Default: | Range:       |
|-----------|----------|--------------|
| ANSI, DEC | Region   | Region, Full |

*PrintExtent* determines whether the scrolling region or full screen is printed when you receive a printscreen sequence from the host system. Region (default) causes only the scrolling region to print. Change this to Full if you want to print the entire screen.

## R2screen

| Used in: | Default: | Range:       |
|----------|----------|--------------|
| REMOTE2  | Normal   | Fast, Normal |

*R2screen* determines how the data received from the host appears on your screen. When set to NORMAL, the host waits for screen updates, resulting in a smooth refresh of your screen. When set to FAST, Host PC performance is increased, although the display does not appear as smooth as when set to NORMAL.

## RomLevel

| Used in: | Default: | Range:   |
|----------|----------|----------|
| TV       | 2.0      | 1.0, 2.0 |

*RomLevel* lets you specify which TeleVideo firmware version is emulated. The default 2.0 is appropriate for most host systems; change this to 1.0 only if the host system informs you that data is invalidly formatted.

## Scrolling

| Used in: | Default: | Range:            |
|----------|----------|-------------------|
| IBM3101  | Enabled  | Enabled, Disabled |

*Scrolling* determines whether screen scrolling is enabled (on) or disabled (off). Enabled (on, default) enables scrolling. Change this only if required by the host system application.

## SendKey

| Used in: | Default: | Range:     |
|----------|----------|------------|
| IBM3101  | Page     | Page, Line |

*SendKey* determines whether pressing the Send key sends the current page or line. When set to Page (default), the current page is sent. Change this to Line if the host system expects to receive a line when you press the Send key.

## SendMode

| Used in: | Default: | Range:                     |
|----------|----------|----------------------------|
| IBM3101  | All      | All, Modified, Unprotected |

*SendMode* takes affect when XmitMode is set to Block. All (default) sends all screen areas when you press the Send key. Change this to Modified to send only modified portions, or to Unprotected to send only the unprotected areas.

## SwapDel

| Used in:             | Default: | Range:  |
|----------------------|----------|---------|
| All Terminal Modules | Off      | On, Off |

*SwapDel* allows you to swap the functions of the  and  keys. When this is set to the default OFF,  is the backspace key and  is the "Del" key of the actual terminal. Set this according to your preference.

## TabWidth

| Used in: | Default: | Range: |
|----------|----------|--------|
| TTY      | 8        | Number |

*TabWidth* allows you to set a tab position every N spaces. The default places a tab position every 8 spaces.

## TermChar

| Used in: | Default: | Range:            |
|----------|----------|-------------------|
| IBM3101  | CR       | CR, DC3, EOT, ETX |

*TermChar* sets the terminate character for block mode. The default is appropriate in most cases; change to another setting only when required by the host system.

# XmitMode

| Used in: | Default: | Range:      |
|----------|----------|-------------|
| IBM3101  | Char     | Char, Block |

*XmitMode* determines whether data is transmitted as characters or blocks. When set to Char (default), each character is sent to the host system and echoed when typed. Changing to Block causes characters to be echoed to the screen, with nothing actually sent until you press the Send key.



# Keyboard Maps for Terminal Modules

The following pages provide complete keyboard maps for the ANSI and DEC terminals, showing how any special keys found on the terminal are emulated.

**NOTE:** You can remap the keyboard to override user function key definitions that are not used by the host system. See Chapter 6 for details.

## ANSI Terminal Module Keyboard Map

File Name:           ANSI.XTT  
Terminals:          ANSI Color Terminal Subset

| PC Key:                                                                             | ANSI Key:                                                                           | Character(s) Sent:                  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|
|    |    | Ctrl-I                              |
|    |    | Ctrl-H (depends on SwapDel setting) |
|    |    | Del (depends on SwapDel setting)    |
|    |    | Ctrl-M (depends on NewLine setting) |
|    |    | Esc [A                              |
|    |    | Esc [B                              |
|    |    | Esc [D                              |
|    |    | Esc [C                              |
|    |    | Esc OP                              |
|  |  | Esc OQ                              |
|  |  | Esc OR                              |
|  |  | Esc OS                              |

# DEC Terminal Module Keyboard Map

File Name: DEC.XTT  
Terminals: VT52, VT100, VT102, VT220, VT320

| PC Key: | DEC Key: | Character(s) Sent:                  |
|---------|----------|-------------------------------------|
|         |          | Ctrl-I                              |
|         |          | Ctrl-H (depends on SwapDel setting) |
|         |          | Delete (depends on SwapDel setting) |
|         |          | Ctrl-M (depends on NewLine setting) |
|         |          | ^[[A (Esc A in VT52 mode)           |
|         |          | ^[[B (Esc B in VT52 mode)           |
|         |          | ^[[D (Esc D in VT52 mode)           |
|         |          | ^[[C (Esc C in VT52 mode)           |
|         |          | ^[[OP                               |
|         |          | OQ                                  |
|         |          | ^[[OR                               |
|         |          | ^[[OS                               |
|         |          | ^[[Op                               |
|         |          | ^[[Oq                               |
|         |          | ^[[Or                               |
|         |          | ^[[Os                               |
|         |          | ^[[Ot                               |
|         |          | ^[[Ou                               |
|         |          | ^[[Ov                               |
|         |          | ^[[Ow                               |
|         |          | ^[[Ox                               |

### Keyboard Map For DEC Terminals (cont'd)

| PC Key:      | DEC Key:     | Character(s) Sent: |
|--------------|--------------|--------------------|
| Keypad 9     | Keypad 9     | ^[Oy               |
| Keypad *     | Keypad .     | ^[OI               |
| Keypad -     | Keypad -     | ^[Om               |
| Keypad .     | Keypad .     | ^[On               |
| Keypad Enter | Keypad Enter | ^[OM               |

**NOTE:** The last 14 keys above are for application keypad mode.  
The following keys are for VT220 and VT320 emulation *only*.

### Keyboard Map For DEC VT220 and VT320 Terminals

| PC Key:   | DEC Key: | Character(s) Sent: |
|-----------|----------|--------------------|
| F6        | F6       | ^[17~              |
| F7        | F7       | ^[18~              |
| F8        | F8       | ^[19~              |
| F9        | F9       | ^[20~              |
| F10       | F10      | ^[21~              |
| Shift-F1  | F11      | ^[23~              |
| Shift-F2  | F12      | ^[24~              |
| Shift-F3  | F13      | ^[25~              |
| Shift-F4  | F14      | ^[26~              |
| Shift-F5  | F15      | ^[28~ (HELP key)   |
| Shift-F6  | F16      | ^[29~ (DO key)     |
| Shift-F7  | F17      | ^[31~              |
| Shift-F8  | F18      | ^[32~              |
| Shift-F9  | F19      | ^[33~              |
| Shift-F10 | F20      | ^[34~              |

Keyboard Map For DEC VT220 and VT320 Terminals (cont'd)

|          |             |                 |
|----------|-------------|-----------------|
| Ctrl-F6  | Shift-F6    | host programmed |
| Ctrl-F7  | Shift-F7    | host programmed |
| Ctrl-F8  | Shift-F8    | host programmed |
| Ctrl-F9  | Shift-F9    | host programmed |
| Ctrl-F10 | Shift-F10   | host programmed |
| Alt-F1   | Shift-F11   | host programmed |
| Alt-F2   | Shift-F12   | host programmed |
| Alt-F3   | Shift-F13   | host programmed |
| Alt-F4   | Shift-F14   | host programmed |
| Alt-F5   | Shift-F15   | host programmed |
| Alt-F6   | Shift-F16   | host programmed |
| Alt-F7   | Shift-F17   | host programmed |
| Alt-F8   | Shift-F18   | host programmed |
| Alt-F9   | Shift-F19   | host programmed |
| Alt-F10  | Shift-F20   | host programmed |
| Home     | Find        | ^[1~            |
| Ins      | Insert Here | ^[2~            |
| Del      | Remove      | ^[3~            |
| End      | Select      | ^[4~            |
| PgUp     | Prev Screen | ^[5~            |
| PgDn     | Next Screen | ^[6~            |

**NOTE:** The Ctrl-F10 key overrides host-generated keyboard locks.

## IBM3101 Terminal Module

File Name: IBM3101.XTT  
 Terminals: IBM 3101 Model 10 and 20

### Keyboard Mapping For IBM3101

| PC Key:        | IBM3101 Key: | Character(s) Sent:                              |
|----------------|--------------|-------------------------------------------------|
| Tab            | Tab          | Ctrl-I                                          |
| Shift-Tab      | Shift-Tab    | None (block mode only)                          |
| Backspace      | Backspace    | Ctrl-H (depends on SwapDel setting)             |
| Ctrl-Backspace | Delete       | Delete (depends on SwapDel setting)             |
| Enter          | Return       | CR or CR/LF (depends on NewLine setting)        |
| ↑              | ↑            | ^A                                              |
| ↓              | ↓            | ^B                                              |
| ←              | ←            | ^D                                              |
| →              | →            | ^C                                              |
| Home           | Home         | ^H                                              |
| Ctrl-Home      | Erase Input  | ^K                                              |
| Ctrl ->        | Line Insert  | None (block mode only)                          |
| Ctrl -<        | Delete Line  | None (block mode only)                          |
| End            | Send Msg     | Sends message                                   |
| Ctrl-End       | EOL/EOF      | ^I                                              |
| PgDn           | Clear        | ^L                                              |
| Ctrl-PgDn      | EOS          | ^J                                              |
| PgUp           | Send Page    | Sends current page (depends on SendKey setting) |
| Ctrl-PgUp      | Send Line    | Sends current line (depends on SendKey setting) |
| Insert         | Insert Char  | None (block mode Insert On/Off)                 |
| Delete         | Delete Char  | None (block mode Delete char)                   |
| Alt-F10        | Reset        | Reset errors or keyboard locks                  |
| Shift-F1       | Print Page   | Print buffer whole page                         |
| Shift-F2       | Print Line   | Print buffer line                               |

Keyboard Mapping For IBM3101 (cont'd)

| PC Key:  | IBM3101 Key: | Character(s) Sent:   |
|----------|--------------|----------------------|
| Shift-F3 | Print Msg    | Print buffer message |
| F1       | PF1          | ^[a Ctrl-M           |
| F2       | PF2          | ^[b Ctrl-M           |
| F3       | PF3          | ^[c Ctrl-M           |
| F4       | PF4          | ^[d Ctrl-M           |
| F5       | PF5          | ^[e Ctrl-M           |
| F6       | PF6          | ^[f Ctrl-M           |
| F7       | PF7          | ^[g Ctrl-M           |
| F8       | PF8          | ^[h Ctrl-M           |

# TTY Terminal Module

File Name: TTY.XTT  
Terminal: Generic "TTY" Terminal

## Keyboard Map For TTY

| PC Key:                                                                           | Terminal Key:                                                                     | Character(s) Sent:                  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------|
|  |  | Ctrl-H (Depends on SwapDel setting) |
|  |  | Delete (Depends on SwapDel setting) |

**NOTE:** The TTY terminal module adjusts its window size to match the current video mode, up to 50 rows by 132 columns. For example, if you load CROSSTALK Communicator with a 43 x 80 video driver, the TTY terminal window automatically adjusts to 43 rows by 80 columns.

# TV Terminal Module

File Name: TV.XTT  
Terminals: TeleVideo 912, 920, 925 and 950, and  
Lear-Siegler ADM-3a

## Keyboard Map For TeleVideo

| PC Key:        | TeleVideo Key: | Character(s) Sent:                      |
|----------------|----------------|-----------------------------------------|
| Tab            | Tab            | Ctrl-I                                  |
| Shift/Tab      | Shift/Tab      | ^I                                      |
| Backspace      | Backspace      | Ctrl-H (depends on SwapDel setting)     |
| Ctrl-Backspace | Delete         | Delete (depends on SwapDel setting)     |
| Enter          | Return         | CR or CR/LF (depends on LfAuto setting) |
| Ctrl-Return    | Linefeed       | Ctrl-J                                  |
| ↑              | ↑              | Ctrl-K                                  |
| ↓              | ↓              | Ctrl-J (912,920), Ctrl-V (925,950)      |
| ←              | ←              | Ctrl-H                                  |
| →              | →              | Ctrl-L                                  |
| Home           | Home           | Ctrl-^                                  |
| Ctrl-Home      | Clear          | Ctrl-Z                                  |
| Ctrl ->        | Line-insert    | ^E                                      |
| Ctrl -<        | Delete-line    | ^R                                      |
| Ctrl-End       | Line erase     | ^T                                      |
| PgDn           | Shift/clear    | ^*                                      |
| Ctrl-PgDn      | Page erase     | ^Y                                      |
| PgUp           | Send page all  | Transmits the entire page               |
| Ctrl-PgUp      | Send line all  | Transmits the entire line               |
| Insert         | Char insert    | ^Q                                      |
| Delete         | Char delete    | ^W                                      |
| Ctrl-PrtSc     | Print          | ^P                                      |
| F1             | F1             | Ctrl-A @ CR                             |
| F2             | F2             | Ctrl-A A CR                             |



## Keyboard Map For TeleVideo (cont'd)

| PC Key:   | TeleVideo Key: | Character(s) Sent: |
|-----------|----------------|--------------------|
| F3        | F3             | Ctrl-A B CR        |
| F4        | F4             | Ctrl-A C CR        |
| F5        | F5             | Ctrl-A D CR        |
| F6        | F6             | Ctrl-A E CR        |
| F7        | F7             | Ctrl-A F CR        |
| F8        | F8             | Ctrl-A G CR        |
| F9        | F9             | Ctrl-A H CR        |
| F10       | F10            | Ctrl-A I CR        |
| Ctrl-F1   | F11            | Ctrl-A J CR        |
| Shift-F1  | Shift-F1       | Ctrl-A ' CR        |
| Shift-F2  | Shift-F2       | Ctrl-A a CR        |
| Shift-F3  | Shift-F3       | Ctrl-A b CR        |
| Shift-F4  | Shift-F4       | Ctrl-A c CR        |
| Shift-F5  | Shift-F5       | Ctrl-A d CR        |
| Shift-F6  | Shift-F6       | Ctrl-A e CR        |
| Shift-F7  | Shift-F7       | Ctrl-A f CR        |
| Shift-F8  | Shift-F8       | Ctrl-A g CR        |
| Shift-F9  | Shift-F9       | Ctrl-A h CR        |
| Shift-F10 | Shift-F10      | Ctrl-A i CR        |
| Ctrl/F2   | Shift-F11      | Ctrl-A j CR        |

## Protocol Modules

The protocol modules included with CROSSTALK Communicator allow you to perform asynchronous file transfers with virtually any host system.

- The CSERVEB protocol module is used exclusively for file transfers with CompuServe Information Service.
- The KERMIT protocol module is used with hosts that support the Kermit file transfer protocol. Kermit is found on a very wide variety of PC, mini, and mainframe hosts.
- The XMODEM protocol module enables file transfers with virtually any host system, and offers several popular variants: XMODEM, XMODEM-CRC, XMODEM-1K, YMODEM, and YMODEM-G.
- The ZMODEM protocol module enables file transfers with hosts such as bulletin board systems which support the very popular ZMODEM protocol.

Instructions for loading and using these protocol modules is provided in Chapter 5. The following pages provide information on the various options available with each protocol module. Each module has a distinct set of options, all of which are covered completely within the respective module discussions.

**NOTE:** You can also send and receive ASCII text files without the use of protocols, by uploading and capturing to disk. See Chapter 5 for details.

# CSERVEB Protocol Module

The CSERVEB protocol module is used to exchange files with CompuServe using the CompuServe B and CompuServe B+ protocols.

The following table lists all options for the CSERVEB protocol module, which you specify in the Protocol Setup screen as described in Chapter 5.

**CSERVEB File Transfer Protocol Options**

| Variable: | Purpose:                               | Values:                      |
|-----------|----------------------------------------|------------------------------|
| Timing    | Sets wait time between blocks          | Tight, Normal, Loose, Sloppy |
| Image     | Determines the file types transferred. | Yes, No                      |

## CSERVEB Protocol Module Reference

Setting options for the CSERVEB Protocol module function as described below.

### Timing

| Used in: | Default: | Range:                       |
|----------|----------|------------------------------|
| CSERVEB  | Normal   | Tight, Normal, Loose, Sloppy |

*Timing* sets the amount of time the program waits between transmitting blocks of data. If you are calling CompuServe over its own network via a local phone call, use the default Normal. If you are calling through a packet-switched network such as TYMNET or TELENET, you may need to use Loose or Sloppy. The only way to determine the optimum setting for your conditions is to experiment.

### Image

| Used in: | Default: | Range:  |
|----------|----------|---------|
| CSERVEB  | Yes      | Yes, No |

*Image* determines which files you receive from CompuServe. When set to NO, only files that are compatible with your system are sent. When set to YES (default), CompuServe transfers all requested files, regardless of file type.

## KERMIT Protocol Module

The Kermit protocol was designed by Columbia University, primarily to facilitate file transfers between inherently incompatible computers. Kermit is often the best protocol choice when transferring files with a minicomputer or mainframe; it almost always works where some of the other protocols won't.

The table below lists all options in the KERMIT protocol module.

### KERMIT File Transfer Protocol Options

| Variable:    | Purpose:                                                                                                                                                   | Values:                      |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| FileType     | Identifies the type of files to be transferred.                                                                                                            | Binary, Text                 |
| Timing       | Determines the amount of time CROSSTALK Communicator waits before sending the next block of data.                                                          | Tight, Normal, Loose, Sloppy |
| CheckType    | Determines the type of error checking method used.                                                                                                         | Single, Double, CRC          |
| Header       | Sets the "header" character used by the host Kermit program.                                                                                               | Any control character        |
| ControlQuote | Sets the control-character "quoting" character used by Kermit.                                                                                             | Defined by the host Kermit   |
| BinaryQuote  | Sets the binary-character "quoting" character used by Kermit.                                                                                              | Defined by the host Kermit   |
| RepeatChar   | Sets the Kermit "repeat" character prefix.                                                                                                                 | Defined by the host Kermit   |
| WindowSize   | Sets the number of data packets that can be outstanding in the data stream before an acknowledgement is required. The maximum value is 32 (default is 16). | 1 to 32                      |
| PacketSize   | Sets the amount of data sent between error checks.                                                                                                         | 94 to 9024                   |
| PacketDelay  | Determines the amount of time (in tenths of seconds) to wait before sending a packet of data.                                                              | Defined by the host Kermit   |

## KERMIT Protocol Module Reference

Setting options for the KERMIT protocol module function as described below.

### FileType

| Used in: | Default: | Range:       |
|----------|----------|--------------|
| KERMIT   | Binary   | Binary, Text |

*FileType* identifies the type of files to be transferred. Use the default Binary to transfer program (executable) files; set to Text to transfer text files.

### Timing

| Used in: | Default: | Range:                       |
|----------|----------|------------------------------|
| KERMIT   | Normal   | Tight, Normal, Loose, Sloppy |

*Timing* determines the amount of time CROSSTALK Communicator waits between transmitting blocks of data. If you are communicating via a direct connection or local phone call, use Tight. If calling through a long distance service, particularly satellite connections, you may need to use Loose or Sloppy. The only way to determine the optimum setting for your conditions is to experiment.

## CheckType

| Used in: | Default: | Range:              |
|----------|----------|---------------------|
| KERMIT   | Single   | Single, Double, CRC |

*CheckType* determines the type of error checking method used. Note that not all host Kermit protocol implementations support all three check types; if you select one that is not supported on the host system, CROSSTALK Communicator automatically changes to a supported setting.

## Header

| Used in: | Default: | Range:                |
|----------|----------|-----------------------|
| KERMIT   | ^A       | Any control character |

*Header* sets the "header" character used by the host Kermit program. Ctrl-A is the normal setting; change this only if the host system requires another setting.

## ControlQuote

| Used in: | Default: | Range:                     |
|----------|----------|----------------------------|
| KERMIT   | #        | Defined by the host Kermit |

*ControlQuote* sets the control-character "quoting" character used by Kermit. "#" (default) is the normal setting; change this only if the host system requires another setting.

## BinaryQuote

| Used in: | Default: | Range:                     |
|----------|----------|----------------------------|
| KERMIT   | Y        | Defined by the host Kermit |

*BinaryQuote* sets the binary-character "quoting" character used by Kermit. "Y" (default) is the normal setting; change this only if the host system requires another setting.

## RepeatChar

| Used in: | Default: | Range:                     |
|----------|----------|----------------------------|
| KERMIT   | ~        | Defined by the host Kermit |

*RepeatChar* sets the Kermit "repeat" character prefix. "~" (tilde, default) is the normal setting; change this only if the host system requires another setting.

## WindowSize

| Used in: | Default: | Range:  |
|----------|----------|---------|
| KERMIT   | 16       | 1 to 32 |

*WindowSize* sets the number of data packets that can be outstanding in the data stream before an acknowledgement is required. Select a setting which matches the host's setting.



# PacketSize

| Used in: | Default: | Range:     |
|----------|----------|------------|
| KERMIT   | 94       | 94 to 9024 |

*PacketSize* sets the amount of data sent between error checks. Kermit normally sends 94 bytes of data between error checks. If you are using a direct connection or an error-free data link, you should increase the packet size to increase efficiency. The maximum size is 9024 bytes. (Note that some combinations of *PacketSize* and *WindowSize*, such as 9024 and 16, won't work because of memory constraints.)

# PacketDelay

| Used in: | Default: | Range:                     |
|----------|----------|----------------------------|
| KERMIT   | 0        | Defined by the host Kermit |

*PacketDelay* determines the amount of time (in tenths of seconds) to wait before sending a packet of data. Leave this at the default 0 unless the host system cannot keep up.

## XMODEM Protocol Module

The following table lists all options for the XMODEM protocol module, which you specify in the Protocol Setup screen as described in Chapter 5.

| Variable:    | Purpose:                                                                       | Values:                            |
|--------------|--------------------------------------------------------------------------------|------------------------------------|
| Pmode        | Selects the type of XMODEM to use                                              | XMODEM, CRC, XMODEM-1K, and YMODEM |
| Timing       | Sets wait time between data blocks                                             | Tight, Normal, Loose, Sloppy       |
| LinkMode     | Disables error checking (for use only with YMODEM and error-correcting modems) | Normal, G                          |
| CancelString | Determines characters to send if file transfer is cancelled                    | 1 to 10 uppercase characters       |
| CancelCount  | Sets number of ^X's expected from host when it cancels a transfer              | 1 to 999                           |

## XMODEM Protocol Module Reference

Setting options for the XMODEM protocol module function as described below.

### Pmode

| Used in: | Default: | Range:                                        |
|----------|----------|-----------------------------------------------|
| XMODEM   | CRC      | XMODEM (checksum), CRC, XMODEM-1K, and YMODEM |

*Pmode* selects the type of XMODEM to use. In most cases, you can use the default CRC even if you're not sure whether the host system supports CRC checking; if it cannot, the program automatically switches to the original checksum error checking.

## Timing

| Used in: | Default: | Range:                       |
|----------|----------|------------------------------|
| XMODEM   | Normal   | Tight, Normal, Loose, Sloppy |

*Timing* sets the amount of time XMODEM waits between transmitting blocks of data. If you are communicating via a local phone call, use Tight. If calling through a long distance service (particularly satellite connections) or are communicating with a busy mainframe through a packet-switched network such as TYMNET or TELENET, you may need to use Loose or Sloppy. The only way to determine the optimum setting for your conditions is to experiment.

## LinkMode

| Used in: | Default: | Range:    |
|----------|----------|-----------|
| YMODEM   | Normal   | Normal, G |

*LinkMode* determines whether error checking is used with YMODEM (see Pmode above). Change this to G only if using YMODEM over an error-free data link (communications between error-correcting modems), to turn off error-checking and increase efficiency.

## CancelString

| Used in: | Default:   | Range:                       |
|----------|------------|------------------------------|
| XMODEM   | ^X^X^X^H^H | 1 to 10 uppercase characters |

*CancelString* determines what to send to the other system if you cancel the file transfer before it is complete. The default is appropriate for most situations; change it only when you know another string is required by the other computer.

# CancelCount

| Used in: | Default: | Range:   |
|----------|----------|----------|
| XMODEM   | 2        | 1 to 999 |

*CancelCount* is the number of cancel characters (^X) expected from the host when it cancels a file transfer. The default will work in most situations.

## ZMODEM Protocol Module

ZMODEM is rapidly becoming popular among PC communications programs, and is also supported by many bulletin board systems. Its main advantage is that it recovers from "fatal" errors; if you lose the connection in mid-transfer, you can continue from that point after calling back (rather than having to start over at the beginning of a file). ZMODEM also supports "redundant file skipping" -- if the time, date, and size of a file match on both systems, ZMODEM will not transfer that file (it skips to the next file if you are using wildcards), thus increasing efficiency between systems that transfer files routinely.

The table below lists all options in the ZMODEM protocol module.

### ZMODEM File Transfer Protocol Options

| Variable:  | Purpose:                                                                                                                                                        | Values:                      |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| PacketSize | Determines the amount of data to be sent between error checks.                                                                                                  | 256, 1024                    |
| Timing     | Determines the amount of time CROSSTALK Communicator waits between transmitting blocks of data.                                                                 | tight, normal, loose, sloppy |
| Recovery   | Determines whether or not the protocol will recover from a partial file transfer.                                                                               | on, off                      |
| Conversion | Determines what is used as the end of line sequence in a file.                                                                                                  | on, off                      |
| HostOS     | Tells ZMODEM whether the host system is operating under DOS, UNIX, or another operating system.                                                                 | DOS, UNIX, other             |
| KeepHalf   | Determines whether or not partially transferred files are kept on the system.                                                                                   | on, off                      |
| RecvMode   | Tells ZMODEM whether to transfer a file when a file of the same name, size, date, and time stamp exists on the host system.                                     | all, noDup, newer            |
| AutoStart  | For the receiving system, determines whether the file transfer is automatic (under control of the sending system) and what alerts the system to receive a file. | both, none, rz, block        |

# ZMODEM Protocol Module Reference

Setting options fro the ZMODEM protocol module function as described below.

## PacketSize

| Used in: | Default: | Range:       |
|----------|----------|--------------|
| ZMODEM   | 256      | 256 and 1024 |

*PacketSize* determines the amount of data to be sent between error checks. ZMODEM can send 256 bytes or 1024 (1K) bytes of data between error checks.

## Timing

| Used in: | Default: | Range:                       |
|----------|----------|------------------------------|
| ZMODEM   | normal   | tight, normal, loose, sloppy |

*Timing* determines the amount of time CROSSTALK Communicator waits between sending blocks of data. If you are communicating via a direct connection or local phone call, use Tight. If calling through a long distance service, particularly satellite connections, you may need to use Loose or Sloppy. The only way to determine the optimum setting for your conditions is to experiment.

## Recovery

| Used in: | Default: | Range:  |
|----------|----------|---------|
| ZMODEM   | off      | on, off |

*Recovery* must be set to ON to re-send a file which was previously only partially transferred (see *KeepHalf* setting). Set *Recovery* to its default setting of OFF after the file transfers successfully.

## Conversion

| Used in: | Default: | Range:  |
|----------|----------|---------|
| ZMODEM   | off      | on, off |

*Conversion* ON tells ZMODEM to convert a carriage return/line feed (CR/LF) sequence to the host system's new line sequence. If OFF, CR/LF sequences are not converted. Always leave this OFF when transferring binary files.

## HostOS

| Used in: | Default: | Range:           |
|----------|----------|------------------|
| ZMODEM   | DOS      | DOS, UNIX, other |

*HostOS* tells ZMODEM whether the host system is running under DOS, UNIX, or another operating system. If set to UNIX and *Conversion* is set to ON, CR/LF sequences are converted to UNIX newline sequences. If set to DOS, no sequences are changed. If set to other, CR/LF sequences are not converted, and CROSSTALK Communicator does not send the auto-download command.

## KeepHalf

| Used in: | Default: | Range:  |
|----------|----------|---------|
| ZMODEM   | on       | on, off |

*KeepHalf* determines whether or not partially transferred files are kept on the system. If set to ON, ZMODEM retains partially transferred files if a "fatal" error occurs (e.g., the transfer is cancelled or the connection is dropped). If set to OFF, partially transmitted files are discarded.

## RecvMode

| Used in: | Default: | Range:            |
|----------|----------|-------------------|
| ZMODEM   | all      | all, noDup, newer |

*RecvMode* tells ZMODEM whether to transfer a file when a file of the same name, size, date, and time stamp exists on the host system. The options are All (default), Newer, and NoDup. If set to NoDup, ZMODEM skips over any matching files. If set to Newer, ZMODEM only transfers matching files if the file to transfer is newer. If set to All, ZMODEM transfers all files regardless of the size, date, and time stamp.

## AutoStart

| Used in: | Default: | Range:                |
|----------|----------|-----------------------|
| ZMODEM   | both     | both, none, rz, block |

For the receiving system, *AutoStart* determines whether the file transfer is automatic (under control of the sending system) and what alerts the system to receive a file. The default, Both, should be used in most cases; the system will begin receiving a file when it detects the characters RZ followed by a CR, or a ZMODEM block of data. You can restrict this with the RZ setting (receive file only after receiving the RZ/CR sequence) or Block (receive only when detecting a ZMODEM block). The setting None requires you to select Receive from the File Transfer screen (**Alt-P**) to receive a file.



## Filter Modules

CROSSTALK Communicator offers five data filtering modules which allow you to examine characters as they are either received from the host or transmitted by CROSSTALK Communicator.

- The CASE filter offers conversion of case for received or transmitted characters, or both.
- The CONTROL filter removes selected control characters from incoming data.
- The DEBUG filter displays a separate window in which incoming data is displayed in one of several special formats.
- The GERMANY filter translates both incoming and outgoing characters to their German equivalents.
- The SCANDNVN filter translates both incoming and outgoing characters to their Scandinavian equivalents.

The five filters are detailed in the following sections.

# CASE Filter Module

The CASE filter converts incoming or outgoing data (or both) to all uppercase or all lowercase characters, as determined by options in the CASE Filter Setup screen.

The following table lists all options in the CASE filter module.

## CASE Filter Module Options

| Option:   | Purpose:                                                                                                                                                                                                                        |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Convert   | Determines what data is converted by the CASE filter. The Incoming setting converts the data you receive; Outgoing converts the data you send; Both converts the data you send and receive. Off (default) turns the filter off. |
| Translate | Determines the type of conversion. Upper (default) translates all lowercase characters to uppercase; Lower translates all uppercase characters to lowercase.                                                                    |

## CONTROL Filter Module

The setup screen for the CONTROL filter (displayed by pressing Alt-F when the CONTROL filter is loaded) shows all control characters, with either a space or OK next to each one. A space indicates the character will be filtered; OK means the character will pass through the CONTROL filter. By default, the CONTROL filter allows the characters ^G (bell), ^H (backspace), ^I (tab), ^J (line feed), ^M (return), and ^[ (escape) to pass through the filter. For a complete list of control characters, see Appendix D.

To change the setting for any character, move the cursor to the character and press the space bar.

## DEBUG Filter Module

The DEBUG filter displays raw data received at your communications device, before that data passes through the terminal module. Use DEBUG when you need to view specific escape sequences and control characters that are not normally displayed. (You may also save the debug display data to a disk file for later review.)

The DEBUG Filter Setup screen displays the options listed in the table on the following page.

### DEBUG Filter Module Options

| Option:      | Purpose:                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Debug        | Determines how incoming characters are displayed in the debug window. The Char setting displays control characters in the form [^M]; ASCII displays control characters using ASCII mnemonic names (e.g., [CR] for ^M); Hex displays hexadecimal values (e.g., [0D] for ^M); Dec displays decimal values (e.g., [13] for ^M). Off (default) turns the filter off. (Refer to Appendix D for a table of ASCII mnemonics, hex codes, and decimal values.) |
| ControlsOnly | Determines what is shown in the debug window when the Debug option is set to Hex or Dec. Off (default) shows all characters. Change to On if you want to display only control characters.                                                                                                                                                                                                                                                             |
| DebugZone    | Controls which screen area contains the debug window. The default 8 places the window in the lower-right quarter of the screen.                                                                                                                                                                                                                                                                                                                       |
| DebugFile    | Lets you enter the file name (including drive and directory if necessary) to be used when FileMode is set to On.                                                                                                                                                                                                                                                                                                                                      |
| FileMode     | Determines whether the DEBUG display data is captured to a disk file, which you can examine later for debugging purposes. Set to On to start disk capture; change to Off to stop disk capture.                                                                                                                                                                                                                                                        |
| Direction    | Determines which characters are displayed or put in DebugFile. "Incoming" (default) shows only received characters. "Outgoing" shows only transmitted characters. "Both" shows both incoming and outgoing characters.                                                                                                                                                                                                                                 |

## GERMANY Filter Module

The GERMANY filter module provides special filtering for use when you are communicating with a computer in Germany. This filter translates both incoming and outgoing characters to their equivalents or replacements in the German character set. There are no variables in the GERMANY filter module; characters are automatically converted as shown below.

### Conversion for Received Characters (GERMANY)

| Character received: | Character displayed: | Decimal equivalent: |
|---------------------|----------------------|---------------------|
| @                   | ^U                   | 21                  |
| [                   | Ä                    | 142                 |
| \                   | Ö                    | 153                 |
| ]                   | Ü                    | 154                 |
| {                   | ä                    | 132                 |
|                     | ö                    | 148                 |
| }                   | ü                    | 129                 |
| ~                   | ß                    | 225                 |

### Conversion for Sent Characters (GERMANY)

| Key character: | Character sent: | Decimal equivalent: |
|----------------|-----------------|---------------------|
| ^U             | @               | 64                  |
| Ä              | [               | 91                  |
| Ö              | \               | 92                  |
| Ü              | ]               | 93                  |
| ä              | {               | 123                 |
| ö              |                 | 124                 |
| ü              | }               | 125                 |
| ß              | ~               | 126                 |

## SCANDNVN Filter Module

The SCANDNVN Filter module provides special filtering for use when you are communicating with a computer in Norway, Denmark, Sweden, or Finland. This filter translates both incoming and outgoing characters to their equivalents or replacements in the Scandinavian languages character set.

There is only one variable in the SCANDNVN module.

### SCANDNVN Filter Module Option

| Option: | Purpose:                                                                                                                                              |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Country | Choose from Norway, Denmark, Sweden, or Finland (according to the country with which you are communicating) to determine how characters are filtered. |

Filtering is performed according to your selection for Country, as shown in the following tables. Note that filtering is identical for Norway and Denmark, and for Sweden and Finland.

### Conversion for Received Characters (NORWAY/DENMARK)

| Character received: | Character displayed: | Decimal equivalent: |
|---------------------|----------------------|---------------------|
| }                   | å                    | 134                 |
| l                   | ø                    | 155                 |
| {                   | æ                    | 145                 |
| [                   | Æ                    | 146                 |
| \                   | ¥                    | 157                 |
| ]                   | Å                    | 143                 |

**Conversion for Sent Characters (NORWAY/DENMARK)**

| Key character: | Character sent: | Decimal equivalent: |
|----------------|-----------------|---------------------|
| å              | }               | 125                 |
| ø              |                 | 124                 |
| æ              | {               | 123                 |
| Æ              | [               | 91                  |
| ¥              | \               | 92                  |
| Å              | ]               | 93                  |

**Conversion for Received Characters (SWEDEN/FINLAND)**

| Character received: | Character displayed: | Decimal equivalent: |
|---------------------|----------------------|---------------------|
| }                   | å                    | 134                 |
|                     | ø                    | 148                 |
| {                   | ä                    | 132                 |
| [                   | Ä                    | 142                 |
| \                   | Ö                    | 153                 |
| ]                   | Å                    | 143                 |

**Conversion for Sent Characters (SWEDEN/FINLAND)**

| Key character: | Character sent: | Decimal equivalent: |
|----------------|-----------------|---------------------|
| ^U             | }               | 125                 |
| Ä              |                 | 124                 |
| Ö              | {               | 123                 |
| Ü              | [               | 91                  |
| ä              | \               | 92                  |
| ö              | ]               | 93                  |



## Appendix D ASCII Code Table

This table is a list of standard ASCII control characters. The table shows the character, its hex and decimal values, and the ASCII mnemonic name of each character.

| Char | Hex | Dec | Mnemonic | Meaning                      |
|------|-----|-----|----------|------------------------------|
| ^@   | 00  | 00  | NUL      | Null character               |
| ^A   | 01  | 01  | SOH      | Start Of Header              |
| ^B   | 02  | 02  | STX      | Start of Text                |
| ^C   | 03  | 03  | ETX      | End of Text                  |
| ^D   | 04  | 04  | EOT      | End Of Transmission          |
| ^E   | 05  | 05  | ENQ      | Enquire (answerback request) |
| ^F   | 06  | 06  | ACK      | Acknowledge                  |
| ^G   | 07  | 07  | BEL      | Bell                         |
| ^H   | 08  | 08  | BS       | Backspace                    |
| ^I   | 09  | 09  | TAB      | Tab                          |
| ^J   | 0A  | 10  | LF       | Line Feed                    |
| ^K   | 0B  | 11  | VT       | Vertical Tab                 |
| ^L   | 0C  | 12  | FF       | Form Feed                    |
| ^M   | 0D  | 13  | CR       | Carriage Return              |
| ^N   | 0E  | 14  | SO       | Shift Out                    |
| ^O   | 0F  | 15  | SI       | Shift In                     |
| ^P   | 10  | 16  | DLE      | Data Link Escape             |
| ^Q   | 11  | 17  | DC1      | Device Control 1 (XON)       |
| ^R   | 12  | 18  | DC2      | Device Control 2             |
| ^S   | 13  | 19  | DC3      | Device Control 3 (XOFF)      |
| ^T   | 14  | 20  | DC4      | Device Control 4             |
| ^U   | 15  | 21  | NAK      | Negative Acknowledgement     |
| ^V   | 16  | 22  | SYN      | Synchronize                  |
| ^W   | 17  | 23  | ETB      | End of Text Block            |
| ^X   | 18  | 24  | CAN      | Cancel                       |
| ^Y   | 19  | 25  | EM       | End of Media                 |
| ^Z   | 1A  | 26  | SUB      | Substitute                   |
| ^[   | 1B  | 27  | ESC      | Escape                       |
| ^\   | 1C  | 28  | FS       | Form Separator               |
| ^]   | 1D  | 29  | GS       | Group Separator              |
| ^^   | 1E  | 30  | RS       | Record Separator             |
| ^_   | 1F  | 31  | US       | Unit Separator               |



## Appendix E Modem and Cable Connections

This appendix provides information on connecting your PC to an external modem, and on "hardwiring" two PCs via cable for the purpose of file transfers. Complete information on the proper cables is included for both kinds of connections.

### Modem Cables

To properly connect an external modem to your PC, you must select the appropriate modem cable. Most computer stores supply ready-made modem cables. The main difference between different modem cable types is the computer serial port with which they are designed to connect.

The serial ports on IBM and compatible computers have one of two types of serial port connectors: A 25-pin male "D-shell" connector or a 9-pin male connector. (Nearly all modems have 25-pin female connectors.) For ready-made cables, simply select one with the appropriate serial port connector. If you cannot find a ready-made cable, consult the following sections for information on proper cable wiring.

**NOTE:** Ribbon-type cables may provide correct connection, but beware that ribbon cables can cause considerable radio-frequency interference to televisions, radios, and video tape equipment.

### 25-Pin Connectors

If your computer's serial port has a 25-pin connector, the cable used to attach your modem should be connected "straight across" on pins 1 through 8 and pin 20 (pin 1 to pin 1, pin 2 to pin 2, etc.). You need a male connector at the modem end of the cable and a female connector at the PC end of the cable.

### 9-Pin Connectors

If your computer has a 9-pin serial port connector, it should be wired according to the following table.

| Modem Connector: | PC Connector: | Signal name:              |
|------------------|---------------|---------------------------|
| 8                | 1             | Carrier Detect            |
| 3                | 2             | Receive Data              |
| 2                | 3             | Transmit Data             |
| 20               | 4             | Data Terminal Ready       |
| 7                | 5             | Signal Ground             |
| 6                | 6             | Data Set Ready            |
| 4                | 7             | Request to Send           |
| 5                | 8             | Clear to Send             |
| 22               | 9             | Ring Indicator (optional) |

## Modem Option Switches

Most modems have a number of option switches. Some modems feature physical "dip" switches, while others, especially high-speed or portable modems, use "software" switches that are set with modem commands.

If you are using a modem type listed in the CONFIG script (see Chapter 2), you *do not* need to reset any of these switches. Once you've selected the modem type in CONFIG, CROSSTALK Communicator adjusts operation as needed for that modem.

If you install a modem of a different type, be sure to rerun the CONFIG script.

If you are using a type of modem that is not listed in CONFIG, you must check its switch settings to make sure they are appropriate for use with CROSSTALK Communicator and, if not, adjust them manually. The only two switches you need to be concerned with are Carrier Detect (CD) and Data Terminal Ready (DTR).

The CD switch on most modems has two settings: ON, which means the CD signal is held ON or TRUE at all times, and NORMAL, which means the CD signal is held ON or TRUE only when a carrier signal is actually received from the host system.

If the CD switch on your modem is set to ON, change it to NORMAL. Leaving it in the ON position would inhibit CROSSTALK Communicator from determining when the host computer disconnects.

The DTR switch on most modems also has ON and NORMAL options. ON means DTR signal is held ON or TRUE at all times, ignoring any DTR signal from your computer, and NORMAL causes the modem to hang up when the DTR signal from your computer goes off. If your modem's DTR switch is set to ON, change it to NORMAL. Leaving the DTR switch set to ON would keep the modem from disconnecting from the host system when you terminate the call.

## Connecting Two Systems Directly

CROSSTALK Communicator can be used for communications between two computer systems whose serial ports are connected together by cables (without the use of a modem). This is usually done for the purpose of transferring files, and is very handy if you have one machine with 3 1/2" disks and another with 5 1/4" disks.

To connect two systems by cable, you must first determine whether their serial ports are configured as DTE (data terminal equipment) or DCE (data communications equipment). A serial port can be implemented as either DTE or DCE, depending on the type of device it is intended to support. Most PC communications ports are configured as DTE, but check your computer's manual if in doubt.

If you are connecting two computers with different port types (DCE to DTE), you need a straight, unmodified cable.

If the two computers' serial ports are both configured as DTE (the most common situation), you need a "null" modem cable, a "breakout" box, or a special cable to connect each port's Transmit data line to the other port's Receive data line. The following page illustrates examples of DTE-to-DTE connection using various types of connectors.

**NOTE:** The three pins shown in these illustrations are the only connections needed between the two computers in direct cabling.

**25-pin DTE to 25-pin DTE Connection:**

|          | Computer A<br>Pin Number: | Computer B<br>Pin Number: |          |
|----------|---------------------------|---------------------------|----------|
| Transmit | 2                         | 3                         | Receive  |
| Receive  | 3                         | 2                         | Transmit |
| Ground   | 7                         | 7                         | Ground   |

**25-pin DTE to 9-pin DTE Connection:**

|          | Computer A<br>Pin Number: | Computer B (9-pin)<br>Pin Number: |          |
|----------|---------------------------|-----------------------------------|----------|
| Transmit | 2                         | 2                                 | Receive  |
| Receive  | 3                         | 3                                 | Transmit |
| Ground   | 7                         | 5                                 | Ground   |

**9-pin DTE to 9-pin DTE Connection:**

|          | Computer A<br>Pin Number: | Computer B<br>Pin Number: |          |
|----------|---------------------------|---------------------------|----------|
| Transmit | 3                         | 2                         | Receive  |
| Receive  | 2                         | 3                         | Transmit |
| Ground   | 5                         | 5                         | Ground   |

After you have connected the systems with the appropriate cable, test to make sure they are communicating. Start up CROSSTALK Communicator on both systems. On one machine, highlight ANSWER in the Dialing Directory, press **[Alt-S]**, and set the Local variable to On. Make a note of the Modem device module’s connection speed. Return to the Dialing Directory and use the ANSWER entry to put the machine in answer mode.

On the other machine, highlight DIRECT in the Dialing Directory, press **[Alt-S]**, and make sure the Modem device module is set to the same connection speed as on the other machine. Return to the Dialing Directory and use the DIRECT entry to put the machine in direct-connect mode.

Now type on the keyboard of the computer that you put in direct-connect mode. If what you type appears on both screens, you're ready to begin transferring files. (If not, you probably have a cable problem; check the cable, and try again.)

To transfer files between the two computers, follow the instructions in Chapter 5, performing all operations from the computer that you put in direct-connect mode.





## Appendix F Disk Files

There are many files included in the CROSSTALK Communicator package, and a typical installation takes about 720K of disk space (not including any files you create). If you are pressed for disk space, you may wish to remove some of the CROSSTALK Communicator files that you won't need. This appendix describes the purpose of each file, and will help you to determine which files to remove from your working disk or subdirectory.

Please note that these files can *not* be individually restored from your original CROSSTALK Communicator master diskettes. If you decide to get rid of a file, be sure to copy it onto a diskette or back it up so you can recover it later should the need arise.

### Required Files

The following files are *required* by CROSSTALK Communicator, and the program will not operate without them.

|           |                                                                                          |
|-----------|------------------------------------------------------------------------------------------|
| CCM.EXE   | The CROSSTALK Communicator loader program                                                |
| CCM.OVL   | The main CROSSTALK Communicator code file                                                |
| XTALK.MSG | Messages and other text information used by CCM.OVL                                      |
| MODEM.XTD | The MODEM device module, which lets you use your serial port with CROSSTALK Communicator |

### Strongly Recommended Files

These files are USED EXTENSIVELY by CROSSTALK Communicator. If you remove them, you may encounter unexpected errors ("red boxes"). You probably already have Dialing Directory entries which depend on their availability. We recommend that you do NOT remove any of these files unless you have backed them up and are confident that you can work around any problems that may arise.

|           |                                                                                                                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| XTALK.MDM | Modem configuration database which contains setup and control commands for all modems supported by CROSSTALK Communicator. NOTE: This file is used during configuration, but it is not |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

necessary to have it available to use your modem - the control commands are stored in your Dialing Directory. You will not be able to "choose a modem from this list" if you remove this file.

|             |                                                                                                                                                                                                                                                                                                                            |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEC.XTT     | Terminal module which lets CROSSTALK Communicator emulate the DEC VT-52, VT-100, and other VT-series terminals. Almost every host which can support asynchronous terminals will work with this module.                                                                                                                     |
| ANSI.XTT    | Terminal module which lets CROSSTALK Communicator emulate the IBM PC ANSI.SYS terminal control sequences; most often used with bulletin board systems.                                                                                                                                                                     |
| XMODEM.XTP  | Protocol module which lets CROSSTALK Communicator transfer files using the XMODEM, XMODEM-CRC, XMODEM-1K, YMODEM, and YMODEM-G protocols. This is the most commonly used file transfer protocol.                                                                                                                           |
| CONTROL.XTF | Filter module which can selectively eliminate ("filter out") unwanted control characters.                                                                                                                                                                                                                                  |
| GENERAL.XTH | File containing help information for CROSSTALK Communicator. If you remove this file, the online help system (Alt-H) will not be available.                                                                                                                                                                                |
| CONFIG.XTC  | Utility script which allows you to change CROSSTALK Communicator's configuration. While all of the parameters you can modify in CONFIG are accessible in other ways, it's usually easier to use CONFIG. If you change your modem to another port, CONFIG can make the appropriate change to all Dialing Directory entries. |
| DOSMENU.XTC | Utility script which provides a menu of DOS functions such as changing drive/directory, copying and renaming files, etc. If you remove this script, access to those functions will be difficult.                                                                                                                           |

|                           |                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EASYCALL.XTC              | Utility script which sets up Dialing Directory entries for a number of popular information services. Although you can "manually" set up Dialing Directory entries using Ins or Alt-S, EASYCALL makes it much easier.                                                                                                              |
| LEARN.XTC                 | Utility script which automatically creates login scripts by "watching" what you type and how the host system responds. You can create login scripts "manually" as described in the manual, but LEARN generally gives you a good head start on script writing.                                                                     |
| HOST.XTC                  | Script which gives callers access to your answering CROSSTALK Communicator system. If this script is not available, callers will only be able to type back and forth to you; they will not be able to transfer files or perform other activities. You may remove this script if you will never be answering calls from other PCs. |
| MODEM.XTC                 | Script which lets you issue commands directly to your modem. This is sometimes necessary to check or set up special modem parameters that CROSSTALK Communicator may not control itself (such as dial tone duration, etc).                                                                                                        |
| TELENET.XTC<br>TYMNET.XTC | Scripts which are used to log in to various information services via the Telenet (now called SprintNet) and Tymnet public networks. You may remove these files if you are SURE that you never use Telenet and/or Tymnet when accessing information services.                                                                      |

## Terminal Emulation Modules

These files provide specific terminal emulation capability. CROSSTALK Communicator does not use them in any of the Dialing Directory entries it creates, but you may have selected them yourself. If you know

that you will not be requiring a particular terminal emulation, you may remove one or more of these files.

|             |                                                                                                                                                                                                                        |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM3101.TXT | Provides IBM 3101 terminal emulation, which is often used to access IBM mainframes through protocol converters.                                                                                                        |
| TV.XTT      | Provides emulation of several Televideo terminals. This module also provides ADM-3A emulation, since that terminal is a Televideo subset.                                                                              |
| TTY.XTT     | Provides emulation of a "glass TTY" terminal. This module interprets only the most basic terminal control codes (carriage return, backspace, line feed, and bell). Typically, the DEC module can be used in its place. |

## File Transfer Modules

These files allow CROSSTALK Communicator to transfer files to other computers using a variety of file transfer protocols. If you know that you will not need a given file transfer protocol, you may remove one or more of these files.

|             |                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CSERVEB.XTP | See "Service-specific files" below.                                                                                                                                                       |
| KERMIT.XTP  | Transfers files using Columbia University's Kermit protocol. This protocol is most often used with minicomputers and mainframes and is rarely used by BBS systems or PC-to-PC transfers.  |
| ZMODEM.XTP  | Transfers files using Omen Technology's ZMODEM protocol. This protocol is most often used by BBS systems, and is usually the protocol of choice in that environment (if it is available). |

## Filter Modules

These files allow CROSSTALK Communicator to perform special "filtering" of information coming in to your PC. They are usually used in special-purpose applications or to implement a non-English character set.

**GERMANY.XTF** Maps characters into their German equivalents. This filter is only likely to be used when communicating with German minicomputers or mainframes.

**SCANDNVN.XTF** Maps characters into their Danish, Swedish, Norwegian, or Finnish equivalents. This filter is only likely to be used when communicating with minicomputers or mainframes in a Scandinavian country.

**CASE.XTF** Forces incoming or outgoing characters into UPPER or lower case. Usually, this filter is only useful when communicating with old host systems which require all input to be in upper case.

**DEBUG.XTF** Allows display of incoming characters in a "debugging" format so that unusual or unexpected characters can be monitored. This filter is often helpful in problem situations, but is rarely necessary if reliable communications have been established.

## Utility Scripts

These files perform special tasks to help you use CROSSTALK Communicator more effectively. If you do not require their functionality, you may remove them. Many of these scripts are accessible through the Alt-M utilities menu; if you remove the file from your disk, we recommend that you also remove the script from the Alt-M menu to avoid confusion.

**BROWSER.XTC** Provides an easy way to browse the XTALK.LOG transaction log, the READ.ME late-breaking information file, or other text files. If you don't

mind typing in the name of the file you want to browse, similar functionality is available through the DOSMENU utility script.

- COLORS.XTC** Allows you to change the colors used by CROSS-TALK Communicator. If you like the screen colors you have now, you may remove this script. You do NOT need this script to switch back and forth between a color and monochrome display - CROSSTALK Communicator automatically "de-colorizes" your color choices if it is used on a monochrome display.
- CONVERT.XTC** Converts Crosstalk-XVI .XTK and .XTS files into a format usable by CROSSTALK Communicator. If you don't have Crosstalk-XVI, and don't need to convert anyone else's files for use by CROSSTALK Communicator, you can remove this script.
- NEWCALL.XTC** Sets up a Dialing Directory entry for a host which is not included in EASYCALL's menu. You can use Alt-S to set up all the necessary parameters "manually" instead of using NEWCALL. NEWCALL is not on the script menu; it is only accessed through EASYCALL, so if you've removed EASYCALL, you can remove NEWCALL as well.
- PSPOOL.XTC** Prints text files while communication continues. If you do not need to print files while using CROSSTALK Communicator, you can remove this script. Note that this script is used by the DOSMENU script; if it is not available, you will not be able to print files via DOSMENU.
- WHEREIS.XTC** Locates a file by searching through all the directories on your hard disk. This script is also accessed through DOSMENU, and if you remove it, you will not be able to search for files via DOSMENU.

**XDIR.XTC** Shows files with estimated transmission times. XDIR's estimates do not account for inefficient protocols or noisy lines. This script is also accessed through DOSMENU, and if you remove it, you will not be able to check file transmission times via DOSMENU.

## Service-Specific Files

These files are only required when communicating with a particular information service or host system. If you know that you will not be using a certain service, you can remove the corresponding files. You may also choose to remove any Dialing Directory entries for the service. If you remove the service-specific files for a given service, EASYCALL will be unable to help you set up a Dialing Directory for that service, and you will have to log in manually.

|                     |                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------|
| <b>AT&amp;T.XTC</b> | AT&T Mail                                                                                          |
| <b>CSERVE.XTC</b>   | CompuServe Information Service                                                                     |
| <b>DELPHI.XTC</b>   | Delphi Information Service                                                                         |
| <b>DIRECT.XTC</b>   | Direct connection to another PC or a host computer (without a modem)                               |
| <b>DOWJONES.XTC</b> | Dow Jones News/Retrieval                                                                           |
| <b>GENIE.XTC</b>    | GENie Information Service                                                                          |
| <b>LEXIS.XTC</b>    | Mead Data's LEXIS and NEXIS services                                                               |
| <b>MCI.XTC</b>      | MCI Mail                                                                                           |
| <b>NEWSNET.XTC</b>  | NewsNet                                                                                            |
| <b>OAG.XTC</b>      | Official Airline Guide                                                                             |
| <b>PCBOARD.XTC</b>  | Bulletin board systems using the PCBOARD software                                                  |
| <b>REMOTE2.XTC</b>  | For logging into PC's using Crosstalk Communications's Remote <sup>2</sup> remote-access software. |

## Disk Files

|             |                                                                                              |
|-------------|----------------------------------------------------------------------------------------------|
| REMOTE2.XTT | Terminal module suggested for use when accessing Remote <sup>2</sup> Host equipped host PCs. |
| VUTEXT.XTC  | Vu/Text                                                                                      |



## **Appendix G Technical Support**

This *User's Guide* has been specifically tailored for the new user, with full instructions on all of CROSSTALK Communicator's central functions. If you are having difficulty performing any operation, you are encouraged to return to the chapter that covers the communications task in question.

This appendix is provided for users who need further assistance or have problems operating CROSSTALK Communicator.

DCA/Crosstalk Communications maintains a Technical Support group and a Bulletin Board System (BBS) for users who need additional assistance with CROSSTALK Communicator. There is no cost associated with the use of these services, except for any long-distance charges you may incur for the call. The telephone numbers for these services are listed below.

### **Technical Support**

CROSSTALK Communicator Technical Support is available by telephone Monday through Friday, from 9 AM to 6 PM Eastern time, at:

**(404) 442-3210**

Please have your CROSSTALK Communicator serial number and version number ready when you call.

### **Bulletin Board System**

You may also obtain assistance by modem with a call to our Bulletin Board System.

The Crosstalk BBS offers CROSSTALK Communicator support, and also allows you to download files. This BBS offers several bulletins; when you call in, be sure to read bulletin 1 for BBS information.

The Crosstalk BBS can be contacted as described in Chapter 3 of this manual.

## **CompuServe Forum**

CompuServe users can type GO XTALK at any CompuServe "!" prompt to access the Crosstalk Forum. This Forum provides useful product information, gives you the opportunity to ask questions related to your specific uses, and allows you access to data (file) libraries.

## **Customer Service**

If you need assistance with questions or concerns about such things as mailing address changes, disk updating, or software versions, call our Customer Service Department between 9:00 a.m. and 5:30 p.m. Eastern time. We will be glad to assist you with questions of this nature. The telephone number is:

**(404) 442-4095**

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